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Skeptical Inquirer

THE MAGAZINE FOR SCIENCE AND REASON

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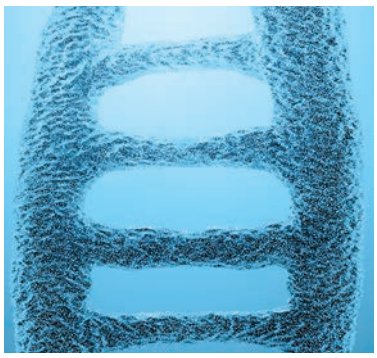

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[FROM THE EDITOR

A Few Changes, and with Randi Down Under

Subscribers will notice a cover wrap around this issue announcing a change. But don't fear; it won't affect you at all—or anything about the Skeptical Inquirer and our Committee for Skeptical Inquiry (CSI) in any substantive sense. Effective January 8, CSI and its sister organization, the Council for Secular Humanism (CSH), publisher of *Free Inquiry*, merged into the Center for Inquiry (CFI). CFI has been our host organization for a long time. Now the relationship is formalized. CSI (and CSH) are now programs of CFI instead of separate nonprofit corporations. Subscribers become members of CFI. Many efficiencies result from the move. My colleagues and I on the Board assure you that Skeptical Inquirer's content and mission and CSI's advocacy, educational, and outreach activities will continue more strongly than ever.

* * *

We welcome 2,748 new subscribers with this issue. That's how many people responded to our new circulation promotion campaign in early December. Welcome to our lively community of science-oriented skeptics and inquirers. We apply all the tools of science and critical thinking to find out what's real and what isn't about popular claims and ideas that fascinate—and often mislead—the public. It's a much-needed task, but we have a lot of fun along the way. Join us. I welcome your feedback.

* * *

Congratulations to our skeptic colleagues in Australia. The Australian Skeptics were founded in 1980 (four years after us), and in late November they celebrated with their thirtieth consecutive annual national conference, in Sydney. I participated, and found them to be a great and lively bunch. My brief report is in this issue's News and Comment section. My own conference remarks about the organized skeptical movement appear as a Commentary.

* * *

The timing was coincidental, but James ("The Amazing") Randi flew to Australia that same weekend to begin a weeklong Australian tour promoting the candid new film about his life and work, *An Honest Liar.* I hope everyone can eventually see it. (See the interview with Randi on p. 38.) My wife, Ruth, and I were in the audience at Randi's final tour appearance, at a sold-out Sydney theatre December 7. The movie was screened (to great applause), an interviewer conversed with Randi live on stage, and Australian Skeptics cofounder Dick Smith joined Randi for a final twenty minutes of reminiscences about Randi's several epic skeptical investigations in Australia. Near the end an audience member asked Randi a question about a situation most skeptics experience: How do you respond to a friend who ardently believes in ideas and claims that scientists and skeptics know to be nonsense? Randi, the scourge of professed psychics and charlatans everywhere, paused thoughtfully for a time and then softly whispered an answer that might surprise you: "Be kind." He repeated: "Be kind." They believe because they need to believe, he explained. Be compassionate. At the end, the eighty-six-year-old Randi, clearly moved, noted that it is possible this would be his last trip to Australia. He hopes not, but that's always possible. "Goodbye, Australia," he said. There wasn't a dry eye in the house.

—Kendrick Frazier

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On Our Cover

Twenty years ago, in 1995, NASA issued an image taken by the Hubble Space Telescope of the breathtakingly beautiful cluster of young, massive stars in a small region of the Eagle Nebula, M16. We immediately published a part of it as the cover of our SI January/February 1996 issue. The image was dubbed "The Pillars of Creation" and became iconic, one of the most famous scientific images ever. In celebration of that photograph's twentieth anniversary, Hubble has revisited the famous pillars, providing astronomers with a sharper, wider, more detailed, and perhaps even more beautiful, view. NASA issued this new image on January 7, 2015.

Australian Skeptics Celebrate Thirtieth Consecutive National Conference

Kendrick Frazier

The Australian Skeptics (founded 1980) is the third oldest skeptical group in the world, and its quarterly magazine, *The Skeptic*, is the world's second oldest skeptical publication (after the *Skeptical Inquirer*). So because the latest Australian Skeptics National Convention, in Sydney, November 28–30, 2014, was the group's thirtieth consecutive national conference—something no other group can say—the event was quite a well-deserved celebration. I was invited to the festivities and happily flew south.

Australian skeptic leaders such as Richard Saunders and Barry Williams (past presidents), Eran Segev (current president), Tim Mendham (editor of *The Skeptic* and executive director), Ian Bryce (chief investigator), and Joanne Benhamu were everywhere in evidence. George Hrab (from the United States) emceed, introduced all speakers, entertained, and also gave a moving talk during the conference on a subject skeptics usually ignore—dealing with loss and grief. An evening social event preceded the two days of sessions (none concurrent), and there was plenty of time for hobnobbing throughout.

In some ways the big stars of the event were Steven Novella's six-member *Skeptics Guide to the Universe* podcast team, all the way from the United States. Obviously highly popular among skeptics in Australia, the SGU people (Steve, Jay, and Robert Novella, Evan Bernstein, and Rebecca Watson), joined here at times by Hrab, did two live shows during the conference, plus one the night before it and another in Canberra preceding that, before heading off to New Zealand for more of the same.

The conference proper led off with not one but two officially designated "Living Treasures of Australia," Dick Smith and Karl ("Dr. Karl") Kruszelnicki. Dick is a founder of the Australian Skeptics and also a legendary figure in aviation (e.g., solo helicopter trips around the world, landing at the North and South Poles, etc.), business, and environmental sustainability (see sidebar "The Planetary Adventures of Australia's Dick Smith"). Dr. Karl, who has degrees in physics and medicine, is Australia's best-known science communicator, a popular television and radio figure, and author of thirty-two books—most recently *Game of Knowns*, which examines the knowns, unknowns, and unknown unknowns of science.

Dick Smith's keynote talk asked and implicitly answered the question, "Is the human power to self-delude unlimited?" as he surveyed instances of water diviners being dumbfounded by their not passing controlled tests and promoters of "above-unity" machines advocating with a straight face for what would otherwise be called perpetual motion machines. No amount of bad evidence adds up to good evidence, he noted, while cautioning, "We all have our self-delusions." And he noted it would be boring if we were all rational all the time, mentioning love as a prime example.

Smith's main concern now is the clash between limited resources and worldwide economic systems set up to require 2 to 3 percent growth a year or collapse. Everything depends on having rising populations of still more people in the future buying more things than they need. "It's a kind of Ponzi scheme" and "complete madness," Smith said. A businessman himself, "I have little doubt that we can have capitalism without growth." What we need, he emphasized, is growth in quality not quantity.

Astronomer Amanda Bauer (Australian Astronomical Observatory) took attendees to the ultimate end of the universe (or at least our galaxy) four billion years from now when our neighboring Andromeda Galaxy, now hurtling toward us at 250,000 miles per hour, will collide with our Milky Way Galaxy. Such is the space between stars that only a few stars will actually collide, but the gravitational forces will nevertheless tear both galaxies apart. She talked about all this with a big smile and a contagious enthusiasm for the science that enables us to learn even things like this. The motto on her last slide: "I love the universe."

Dick Smith

Karl "Dr. Karl" Kruszelnicki

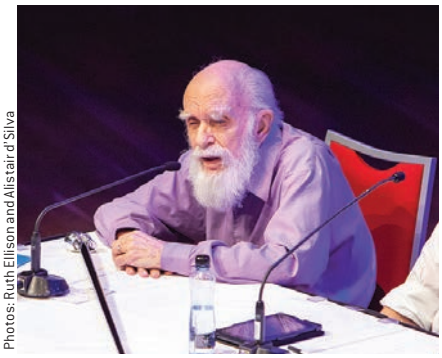
Photos: Ruth Ellison and Alistair d'Silva

Peta Ashworth, a social scientist and leading researcher in understanding public perception of climate change (CSIRO Science into Society Group), spoke on a slightly more timely topic, the politics of communication about

Amanda Bauer

Peter FitzSimons

Steven Novella



James Randi

Photos: Ruth Ellison and Alistair d'Silva

climate change in Australia. Like everywhere, climate change is a big topic in Australia, and she said most Australians care about this issue. (She didn't mention it, but five scientific papers linking climate change to an extreme weather event for the first time were recently published—that event was the extreme heat wave and accompanying wildfires that hit Australia and New Zealand in 2013). But she cautioned that climate science is seen as a culture war. "It's less about the science and more about the values," and so understanding why people *choose* (her emphasis) not to believe the evidence is important. She referred to Dan Kahan's explanations that people use ideological filters that reflect their own group identity, give extra weight to arguments that support their belief, and devote huge efforts to refuting contrary evidence. All these very human psychological processes contribute to the problem.

And so it went. Bronwyn Hemsley, a certified speech therapist and professor at Australia's University of Newcastle, discussed a flurry of recent studies confirming once again that Facilitated Communication—sometimes also called "supported typing"—for people with autism and other communications disabilities not only has no validity but also is "unjustified and unethical." Nevertheless, despite being disproven, it is regaining lost ground. Facilitated Communication is alive and well, she lamented. She ended her talk with an image of a badge every skeptic could treasure. "I [Heart] Evidence."

Michael (Marsh) Marshall of the Merseyside Skeptics in Liverpool, United Kingdom, added a lively talk on a whole variety of investigations and exposés of self-proclaimed psychics and hucksters.

Peter FitzSimons, Australia's best-selling nonfiction author over the past ten years, wearing his trademark red bandanna, gave a mesmerizing, mind-bending, rush-of-words talk that ranged over how travel and reading enable you to question your core beliefs, to his bemusement over people's attachment to what Stephen Frye calls the "Magic Sky Daddy," to the horrors and tragedy of the World War I battle of Gallipoli one hundred years ago that he bluntly calls "a catastrophe." He's recently published a book on Gallipoli that conveys the participants' bravery and appalling losses and also tries, he says, to portray the humanity of the other side.

I spoke about the skeptical movement in the United States (see my Commentary in this issue), and Steven Novella concluded the conference with a thoughtful talk on "Being Better Skeptics." One of his key tips recalls one of the most memorable in Ray Hyman's classic "Proper Criticism." Being charitable to the other person's argument and responding as a professional "is remarkably effective," Novella said. Before making a counterargument decide what you are trying to do and what you want to achieve: persuasion or understanding? "Listen to their motivations and respond on an emotional level," Novella advised. "Until then, facts don't matter." He concluded with a tribute to scientific skepticism: "It is my privilege to be a member of the skeptical community." Skeptics, he said, are honest, and "they want to leave the world a better place."

There was one spontaneous moment just a bit earlier that may have been the highlight of the conference. During the final *Skeptics Guide to the Universe* show Sunday afternoon, host George Hrab suddenly interrupted with a confession and apology. He was supposed to have given a special James Randi Award for Excellence to the Australian Skeptics. He was so sorry, he had totally forgotten. He had to run offstage to get the plaque. When he returned he had with him not an award plaque but the real James Randi, just arrived from the United States to start his Australian tour the next day promoting the new movie about him, *An Honest Liar*. To enormous cheers Randi took a seat with the podcast team and spoke to the live and taped audience. One of the biggest rewards he gets is when someone comes up to him and says, "Mr. Randi, you have changed my life." Randi paused, then added softly, "You can't buy that. You can't buy that. . . . What we do is important."

Kendrick Frazier is editor of the SKEPTICAL INQUIRER

The Planetary Adventures of Australia's Dick Smith

Kendrick Frazier

Photo: Ruth Frazier

Dick Smith (left) with SI Editor Ken Frazier.

Skeptics come in many stripes, but I don't think any other fellows of the Committee for Skeptical Inquiry have quite the list of achievements of Australia's Dick Smith, keynote speaker at the Australian Skeptics National Conference 2014 in Sydney (see main story). A legendary aviator, adventurer, and entrepreneur, Smith is a founder and patron of the Australian Skeptics, having set up Australia's first tests of dowsing with James Randi in 1980. He was elected a CSI fellow about that time. Since then he's facilitated many other skeptical investigations, including into such claims as "above-unity" (perpetual motion) devices. He finds no end to people's self-delusions. He often modestly describes himself as simply a "car radio installer," but in Australia he is famous and respected; his name is just about everywhere. ("Dick Smith is a legend. He is a great man," exclaimed a guide my wife and I hired for a post-conference tour of the Blue Mountains, west of Sydney. For the last twenty minutes of James Randi's final tour appearance in Sydney on December 7, Randi shared the stage of the sold-out theater in conversation with him. At the end, Randi referred to Dick and his wife Pip as national treasures and Australia's leading citizens.) The chain of Dick Smith electronics retail stores throughout Australia that Smith founded still bears his name, even though he sold his interests in the company decades ago to pursue things that matter to him more. Nowadays you are likely to see his name on a line of Dick Smith food products. He created the brands to support local farm producers and to devote the proceeds to charity, a la Paul Newman.

To say he has an adventuresome spirit is understatement. A trim, affable man, he speaks with a youthful enthusiasm and a forceful passion for everything, including appreciating and protecting our home planet. He founded the Australian Geographic Society and its journal *Australian Geographic.* He is a member of the Explorers Club of New York.

His conveyance of choice is the helicopter ("the ultimate off-road vehicle," he says). He hangars two of them at the modern home where he and Pip live on the edge of the bush north of Sydney. He prefers lifting off from his yard and flying over the landscape (as we experienced in a quick before-dinner flight he took us on to see Sydney Harbor from the air) to driving a car (although the car he drove us in to a nearby restaurant is solar powered, the solar panels on the roof of his garage).

To say he has an adventuresome spirit is understatement. A trim, affable man, he speaks with a youthful enthusiasm and a forceful passion for everything.

In the 1980s, Dick Smith carried out a whole series of audacious aviation achievements. He flew a single-engine Bell JetRanger helicopter solo around the world and eventually reached the North Pole. In this record-breaking journey he flew more than 280,000 kilometers, some 18,000 of them over water. He once had to find and land on a deck of a rolling ship in the North Pacific Ocean to refuel. (The Cold War-era Soviets wouldn't let him land on the Kamchatka Peninsula.) And this was before GPS navigation systems. After three grueling attempts in bitter cold, the first two without a heater (to conserve weight for needed extra fuel), he finally reached the North Pole (on April 4, 1987) and stood atop the world. That helicopter is now suspended over the main gallery of the Powerhouse Museum in Sydney.

In another (1988–1989) adventure, he flew a Twin Otter fixed-wing aircraft around the world from Pole to Pole, this time also crossing Antarctica and landing at the U.S. Scott-Amundsen base at the South Pole as well as the Russian Vostok base. In 1994–1995, he and his wife Pip again circled the world in a helicopter, this time from east to west, the opposite direction of Dick's solo flight, visiting forty-one countries along the way.

He chronicled these adventures in three magnificent large-format books published by *Australian Geographic* in the 1990s—*Solo Around the World: Adventures by Helicopter*, *Our Fantastic Planet: Circling the Globe Via the Poles*, and *Above the World: A Pictorial Circumnavigation*, all with stunning photos from the flights. The latter book is coauthored by Pip, who helped support operations for the flights and took all the photos for the third. Chuck Yeager wrote the foreword.

After his pioneering solo round-the-world helicopter flight, Dick Smith was named Australian of the Year in 1987. He has since been officially designated a National Living Treasure.

Don't Call Deniers 'Skeptics,' Statement by 48 CSI Fellows Urges

A statement by forty-eight fellows of the Committee for Skeptical Inquiry (CSI) urging media to stop conflating the terms *denier* and *skeptic* has received widespread media attention and online comment. The statement, "Deniers Are Not Skeptics," was issued online by CSI December 5 as a result of scientists' concerns that certain politicians and others who reject the scientific findings of climate research are improperly calling themselves *skeptics*, a term scientific skeptics say should be reserved for those who are guided by scientific evidence.

CSI Fellow Mark Boslough, a physicist long involved in climate science and the issues surrounding it, drafted the statement, with help from David Morrison, a fellow and planetary scientist. Early signers included CSI Fellows Bill Nye, Ann Druyan, and Nobel laureate chemist Sir Harry Kroto. CSI then invited all CSI fellows (elected for distinguished service to science and skepticism) to add their signatures. Signers came from Australia, Canada, Germany, India, Italy, Mexico, the Netherlands, Spain, the United Kingdom, and the United States. Here is the full text of the statement:

> Public discussion of scientific topics such as global warming is confused by misuse of the term "skeptic." The Nov 10, 2014, *New York Times* article "Republicans Vow to Fight EPA and Approve Keystone Pipeline" referred to Sen. James Inhofe as "a prominent skeptic of climate change." Two days later Scott Horsley of NPR's Morning Edition called him "one of the leading climate change deniers in Congress." These are not equivalent statements.
>
> As Fellows of the Committee for Skeptical Inquiry, we are concerned that the words "skeptic" and "denier" have been conflated by the popular media. Proper skepticism promotes scientific inquiry, critical investigation, and the use of reason in examining controversial and extraordinary claims. It is foundational to the scientific method. Denial, on the other hand, is the a priori rejection of ideas without objective consideration.
>
> Real skepticism is summed up by a quote popularized by Carl Sagan, "Extraordinary claims require extraordinary evidence." Inhofe's belief that global warming is "the greatest hoax ever perpetrated on the American people" is an extraordinary claim indeed. He has never been able to provide evidence for this vast alleged conspiracy. That alone should disqualify him from using the title "skeptic."
>
> As scientific skeptics, we are well aware of political efforts to undermine climate science by those who deny reality but do not engage in scientific research or consider evidence that their deeply held opinions are wrong. The most appropriate word to describe the behavior of those individuals is "denial." Not all individuals who call themselves climate change skeptics are deniers. But virtually all deniers have falsely branded themselves as skeptics. By perpetrating this misnomer, journalists have granted undeserved credibility to those who reject science and scientific inquiry.
>
> We are skeptics who have devoted much of our careers to practicing and promoting scientific skepticism. We ask that journalists use more care when reporting on those who reject climate science, and hold to the principles of truth in labeling. Please stop using the word "skeptic" to describe deniers.

The statement was signed by these CSI fellows (in addition to those already named): Kendrick Frazier, Barry Karr, Amardeo Sarma, Ronald A. Lindsay (President and CEO of CSI and the Center for Inquiry), Kenneth R. Miller, Christopher C. French, Daniel C. Dennett, Massimo Pigliucci, Douglas Hofstadter, Stephen Barrett, Scott O. Lilienfeld, Terence Hines, James Randi, Seth Shostak, Joe Nickell, Henri Broch, Eugenie C. Scott, Edzard Ernst, Indre Viskontas, David J. Helfand, Mario Mendez-Acosta, Cornelis de Jager, Sanal Edamaruku, Loren Pankratz, Sandra Blakeslee, Benjamin Radford, David Thomas, Stuart D. Jordan, David H. Gorski, Anthony R. Pratkanis, Jan Willem Nienhuys, Susan Blackmore, Kenneth Feder, Jill Tarter, Richard Saunders, Jay Pasachoff, Lawrence Krauss, Barbara Forrest, Kimball Atwood, James Alcock, Massimo Polidoro, E.C. Krupp, and Dick Smith. In addition, two CSI Consultants, Luis Alfonso Gamez and Felix Ares de Blas, asked to add their signatures.

Over the next few weeks there was a swell of coverage of the statement. Reporter Abby Ohlheiser, in the *Washington Post*, thoughtfully considered the meaning of the terms being debated and even checked in with Sen. Inhofe himself for his reaction. (He called the signers "extreme environmentalists" and reacted in typically partisan language to an open letter that was from distinguished scientists and scholars.) Physicist Lawrence Krauss, one of the signatories, took to Slate to further the case. *ThinkProgress* did a front-page piece on the statement written by climate scientist Joe Romm, and *National Journal* noted the importance of the statement's timing:

> The letter arrives at a time when political battles over climate-change policy are escalating. One of the biggest fights will come when ascendant Capitol Hill Republicans—including Inhofe, who will be chairman of the Senate's environment committee next year—launch efforts to thwart Obama administration greenhouse-gas regulations.

The statement did not go uncriticized, with swipes taken by the *Wall Street Journal*, *Newsmax*, *The Federalist*, and *Forbes*, but most coverage was positive and helped to move the conversation forward. Additional coverage, much of which hung on the fact that Bill Nye's name was attached to it, also appeared in outlets such as *Ars Technica*, *MarketWatch*, *Grist*, *The Australian*, the *Albany Times-Union*, *UPI*, and *Salon*, which concluded its piece about the statement's "smackdown" with a triumphant "BOOM."

By mid-December the statement had 6,400+ likes on the csicop.org website and thousands more Likes and shares on Facebook and Twitter. Then in January, Forecast the Facts disseminated the statement broadly and got nearly 22,000 more signers. See http://bit.ly/1y3Rsdm.

The statement and full list of signatories and their affiliations are online at www.csicop.org/news/show/deniers_are_not_skeptics.

The CSI news release about it is at www.csicop.org/news/press_releases/show/deniers_not_skeptics.

Forget Psychological Science: Israeli Supreme Court Upholds Conviction Based on Recovered Memories

Rachel Ammirati and Scott O. Lilienfeld

In 1995, when controversy about the accuracy of memories of childhood trauma reached its zenith, psychologist and CSI Fellow Elizabeth Loftus wrote "Remembering Dangerously" to inform Skeptical Inquirer readers of the serious perils associated with uncritically accepting recovered memory claims. Regrettably, nearly twenty years later, the concerns raised by Loftus have reemerged in the wake of a recent Israeli Supreme Court decision to endorse recovered memory claims in the absence of credible corroborating evidence. Like a haunting song played on repeat, Loftus's (1995) simple but profound words remain apropos—"What is going on here?" The Israeli Supreme Court decision coincides with disturbing indications, reviewed recently by psychologist Chris French of Goldsmiths College, University of London, that recovered memory claims—including those of satanic ritual abuse—may be staging a comeback in some countries, including Scotland (http://www.theguardian.com/science/2014/nov/18/satanic-child-abuse-false-memories-Scotland).

In September 2014, the Israeli Supreme Court upheld the conviction of Benny Samuel—now seventy-five years old—of raping his daughter nearly three decades earlier. According to Israeli news sources (Hovel 2014; Paraszczuk 2011), Samuel's daughter, now thirty-eight, had moved from Israel to New York City as a young adult in the late 1990s. While in New York, she began to study "the unconscious mind," and at around the same time had a dream that her father had raped her. She had no prior memory of being sexually abused by her father before then. Following the dream, she soon recalled further memories of rape dating to age three and continuing until age eleven. A few years later in 2002, she filed a police report that led to her father being convicted of rape in 2007. After he later appealed unsuccessfully to the district court, he took his case all the way to the Supreme Court. Two and a half years later, in September 2014, despite vehemently denying the charges, his appeal was rejected again, and he was sentenced to twelve years in prison.

Israeli news sources indicate that the court's decision was based solely on the recovered memory claims of Samuel's daughter, which may have served as a post hoc explanation for her reported history of psychological problems. Indeed, three expert witnesses on behalf of the prosecution argued that despite the absence of any compelling corroborating evidence, the daughter's history of anxiety, interpersonal issues, and school problems, combined with her realistic memories, offered clear evidence of incest. Psychological science, however, reminds us that claims of recovered memories of trauma are controversial at best and poorly supported at worst.

Psychological science reminds us that claims of recovered memories of trauma are controversial at best and poorly supported at worst.

Specifically, a large body of high-quality research indicates that human memory, in its many forms, is malleable and prone to error (Frenda et al. 2011; Loftus 2003). Furthermore, convincing evidence that memories can be repressed and subsequently recovered in accurate form is sorely lacking (Loftus 1993; Loftus and Davis 2006). At present, there is no known psychological mechanism whereby memories of repeated traumatic events can be completely forgotten and then suddenly recalled following a dream—or for that matter as a result of psychotherapy. Well-established research evidence instead demonstrates that most people

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tend to remember traumatic events all too well (Loftus 1993; Shobe and Kihlstrom 1997). Moreover, many or most purported recovered memories of early abuse are probably confabulations—sincerely held but false or distorted recollections. Most psychological experts doubt that genuine recovered memories are even possible given what we know about how memories are created. Even the minority of experts who hold a different view concur that recovered memories should not be accepted as genuine without compelling corroboration from other sources.

If the quotes (some of which were paraphrased) from sexual assault experts highlighted in Paraszczuk's (2011) article in the *Jerusalem Post* are a representative sample, the Israeli Supreme Court premised its ruling on the basis of far less than compelling evidence. For example, suggesting that "false memories evoke no emotional response" and stating that "the clinical symptoms, personal and interpersonal dynamics, and the way the complainant tells the story fit the characteristics of fathers who harm their daughters" is misleading. Scientific research indicates that both false and true memories can be associated with strong emotion (e.g., Laney and Loftus 2008), and any number of variables may account for anxiety, school, and social problems among youth and adults.

Without question, cases of childhood sexual abuse are heinous and tragic, and the perpetrators of such crimes must be brought to justice. At the same time, legal decisions concerning memories of abuse, many of which have the potential to damage the lives of individuals and their families, must be based on the best available scientific evidence. Sadly, the Israeli Supreme Court decision, which appears to have upheld the conviction of an individual solely on the basis of a memory recovered during a dream, lends unwarranted credibility to extremely questionable psychological claims.

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Man Claims AIDS Scare Legend Came to Life

Benjamin Radford

A man in Seattle claimed he was attacked outside a bar one night in September 2014 by a mysterious woman with a needle who stabbed him and then said "Welcome to the HIV club," suggesting that he had just been infected with the AIDS-causing virus. If true, it would be an urban legend come to life.

KIRO-TV reported that

> A man outside a Seattle bar was pricked by a syringe and told, "Welcome to the HIV club," by the woman who stabbed him, police were told. The woman with a syringe, described as a white woman in her late 20s with shoulder-length dirty blonde hair, was walking with a man about the same age who was wearing a baseball hat. As they walked by the victim and his girlfriend on the sidewalk, the victim "felt a sharp prick and stabbing puncture to his left tricep," according to a police report. The woman made the HIV comment while looking directly at him, the victim told police.

Many details about the attack are murky and suspicious, including the fact that the attack was apparently unprovoked and that the victim and his companion are anonymous (the only identifying details were the victim's nationality and that he was a crew member aboard a nearby yacht). Furthermore, according to one report, "The victim . . . didn't report the assault to police until two days later," which seems curious. Police have no leads and there were no other witnesses to the attack. A review of security cameras have not verified that the incident even occurred, and neither the alleged attacker nor the man she was walking with have been found.

Though police don't know who the mysterious attacker is, folklorists might. Here's another similar scary story about the woman:

> A man traveling on business or attending a conference meets a beautiful woman in a bar or nightclub and accepts the invitation to spend the night with her. The next morning he awakens to find that the woman has gone; she left behind only a message written on the bathroom wall (or mirror) in lipstick reading, "Welcome to the world of AIDS." He reports this encounter to the police and learns that authorities have sought this woman for some time. She is an embittered AIDS victim who has vowed to give the disease to every man she can seduce.

This is not a news story but instead an entry on AIDS Mary, a contemporary legend, described by folklorist Jan Brunvand in his *Encyclopedia of Urban Legends*. The details of legends change over time and vary by location, but the theme is unmistakable.

Brunvand notes that this legend "began sweeping the country in 1986 [and] was rampant internationally, especially in Europe, where the sinister message sometimes read, 'Welcome to the AIDS club.'" That this specific, peculiar phrasing of an AIDS or HIV "club" originated in Europe is interesting because according to news reports the unnamed stabbing victim in Seattle is European, and thus the phrase he heard (or claimed to hear) reflects a version of the story from his homeland. This is not to say, of course, that the alleged attacker—presumably an American woman without any noted accent—couldn't refer to an HIV "club," but it's not a typical phrase in the American versions of the urban legend. This is circumstantial evidence that either the attack did not occur as claimed, or that the victim may have misheard or misunderstood what was said to him.

There is in fact a whole category of needle attack legends, and the myth-busting website Snopes (to which I have contributed) has a lengthy discussion of this story:

> A frightening version of the pin prick legend began circulating in the early spring of 1998. According to it, young people partying in clubs or at raves run the risk of being jabbed with an HIV-loaded needle and then afterwards finding a "Welcome to reality—you now have AIDS" message stuffed into a pocket or affixed to them by way of a sticker. This warning has so far circulated in Philadelphia, New York City, San Diego, Oakland, Seattle, Toronto, Vancouver, Montreal, Mexico, Australia, Ecuador, and Germany, each time passed along as something that had already happened to others locally.

Fear over malicious AIDS infection has been around for decades, Brunvand notes: "Prototypes of the modern legend in the 19th century described a vengeful woman spreading a venereal disease among her country's enemy forces." In the early 2000s, urban legend stories of AIDS-infected needles circulated widely, prompting the Centers for Disease Prevention and Control to issue a statement that "CDC has not tested such needles nor has CDC confirmed the presence or absence of HIV in any sample related to these rumors. The majority of these reports and warnings appear to have no foundation in fact. . . . CDC is not aware of any cases where HIV has been transmitted by a needle-stick injury outside a health care setting."

Trying to give someone AIDS using an HIV-infected needle is very unlikely to succeed. This is because HIV cannot exist intact for long outside the body; in fact, it is rendered inert shortly after contact with air. Thus, even if someone got ahold of a quantity of AIDS-infected blood and put it on needles, the virus would likely be dead long before the attacker had the chance to prick anyone with it.

The Seattle attack story has all the hallmarks of an urban legend passed along as truth, but just because a story is an urban legend doesn't mean that it could not happen, or that someone could not act it out if they chose to. It may be a hoax, or it may be a woman familiar with the legend acting it out as a sick joke in a phenomenon that folklorists call "ostension." This occurred in early 2014 when a young girl was stabbed by her friends as part of a Slenderman legend, or as people do when they play out the Bloody Mary urban legend or go ghost hunting. Seattle police failed to find any evidence of the attack, and it's likely that the whole incident was a hoax or misunderstanding. Seattle bar patrons need not fear attacks of HIV-infected needles.

Benjamin Radford is deputy editor of the Skeptical Inquirer and presented on the subject of urban legends at the 2014 conference of the American Folklore Society.

Airline Changes Flight Number Following Psychic's Warning

Benjamin Radford

The Brazilian airline TAM recently changed the flight number of one of its planes based on a prediction by a self-proclaimed psychic that the flight was doomed.

According to a November 24, 2014, story on Fox News, "Jucelino Nobrega da Luz, who says he predicted the deaths of Princess Diana and Brazilian racing legend Ayrton Senna, told authorities flight JJ3720, set to depart Wednesday from Sao Paulo to Brasilia, would develop engine trouble and crash on Sao Paulo's main Paulista drag. Leaving nothing to chance, TAM changed the flight code to JJ4732 after receiving what it termed 'indispensable information.'"

The renumbered flight took off and landed without a problem, though of course there's no reason to think that anything different would have happened if they'd kept the original flight number. It's not clear why Nobrega da Luz decided that the plane was in danger—nor why simply changing the flight number would prevent the disaster, according to him or the airlines. After all, it's the same airplane with the same pilot, crew, and passengers. A rose by any other name would smell as sweet, though a flight by another name, apparently, is a whole different flight.

This is not the first time that a psychic has raised an alarm about a plane; in March 2004, a psychic claimed that a bomb was aboard an American Airlines flight at Southwest Florida International Airport (see "New Details Emerge About Psychic's Airline Bomb Threat Tip," SI, November/December 2004). The bomb report resulted in a preboarding search by the TSA and Port Authority police; despite a thorough examination with both equipment and bomb-sniffing dogs, nothing suspicious was found. The delay caused by the psychic's tip forced cancellation of the flight, and all 128 passengers were placed on later flights, most delayed until the following day. The local TSA administrator defended taking the psychic tip seriously because "we can't ignore anything. We want to take the appropriate measures."

It's easy to chide TAM airlines for what at first glance appears to be superstitious skittishness, but the situation is more complex than that. In public relations, appearance is often more important than fact or truth. Airlines don't want to appear superstitious, but they may have many customers who are. People often greatly exaggerate real risks to themselves, for example driving instead of flying because of safety fears (despite the fact that auto travel is far more dangerous than air travel). They overestimate their risk of contracting or dying from Ebola while treating the deadly flu virus as an insignificant threat. If airline passengers don't feel safe flying TAM for whatever reason—whether valid or imagined—then they will fly another airline or travel another way.

Companies know this, and thus are often forced to officially respond in some way to address their client's concerns. An airline can ignore and dismiss the claim, saying that they cannot allow anyone's bad feeling or intuition to disrupt their operations. On the other hand, if the person making the claim is influential enough it may be easier and cheaper to simply change a flight number to appease the concerns of a vocal superstitious minority.

Bad luck superstitions about travel have been common for millennia. For centuries fishermen and travelers about to embark on long (and potentially uncertain) ocean voyages, for example, performed rituals or entered the boat in a certain way (often the starboard side) to ward off bad luck and evil portents. Iona Opie and Moira Tatem's *A Dictionary of Superstitions* notes that the actions TAM airlines took in addressing the psychic's concerns would have actually been thought to bring about disaster centuries ago because of the name change. Airplanes aren't individually named but do have flight numbers, which were changed in this case. As Opie and Tatem note, "Sailors believe that it is unlucky to alter the name of a ship. Many tales are told of vessels which were lost after such a change." In fact, Robert Louis Stevenson's 1881 classic *Treasure Island* refers to just such a superstition; after a ship's crew of men were "hanged like a dog," their deadly fate "comed of changing names to their ships. . . . Now, what a ship was christened, so let her stay, I say."

Superstitions are common around the world, and aviation is no exception: that's why many planes don't have a row labeled with the infamously unlucky number 13. Of course there is a thirteenth row—it's just not called that in order to avoid upsetting any superstitious passengers.

The 16th European Skeptics Congress will be held at Goldsmiths College, University of London, from September 11 to 13, 2015. The Congress is jointly organized by the Association for Skeptical Enquiry (ASKE) and Goldsmith College's Anomalistic Psychology Research Unit (APRU).

Events will include keynote addresses by distinguished speakers, formal presentations, debates, and poster presentations, plus a pre-congress session and Skeptics in the Pub meetings in the evenings. A section of the Congress will cover research at APRU. Visit the Congress website below for up-to-date information concerning the program, registration and accommodations.

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Organized Skepticism: Four Decades … and Today

KENDRICK FRAZIER

To begin, I want to take you back to just over forty years ago, the year 1974. (For readers barely born then, I apologize; I need to give some historical perspective about organized skepticism, but bear with me, we'll soon forge ahead.)

The world back then was awash in unexamined paranormalism. Astrology was in high vogue, and "What's your sign?" passed for a mainstream conversation starter. Psychics reigned everywhere. Some well-publicized parapsychological experiments had convinced many of the reality of psychic powers (psi). Uri Geller was bending cutlery and fooling even some prominent physicists into thinking he was doing it by the sheer power of his mind. Flying saucers and UFOs were penetrating our skies. Ships and airplanes were seemingly disappearing daily into the Bermuda Triangle. Erich von Däniken was writing bestselling books about ancient astronauts and the almost-racist notion that ancient edifices of the Americas were built not by the skill and hard work of the people who lived there but by aliens.

The world back then was awash in unexamined paranormalism. Astrology was in high vogue, and "What's your sign?" passed for a mainstream conversation starter. Psychics reigned everywhere. Some well-publicized parapsychological experiments had convinced many of the reality of psychic powers (psi). Uri Geller was bending cutlery and fooling even some prominent physicists into thinking he was doing it by the sheer power of his mind.

But a scientific response to all this nonsense was beginning to brew. In February 1974, the American Association for the Advancement of Science, at its annual meeting in San Francisco, held a most extraordinary symposium called to examine the claims of Immanuel Velikovsky and give him the scientific hearing he had long demanded. Velikovsky's *Worlds in Collision* book had gone through seventy-two printings since 1950 and garnered both the wrath of scientists and the science-snubbing approval of some prominent literati.

Five hundred people filled the auditorium that day. I sat in the front row while the seventy-seven-year-old Velikovsky, his silver hair and demeanor lending him an almost biblical air, and the passionate young astronomer Carl Sagan, already famous at age thirty-nine, squared off against each other. Two amazingly charismatic figures in collision. It was electrifying. I was one of the science writers who ran over to Sagan afterward and persuaded him to loan his fifty-six-page manuscript to us temporarily so we could take it to the AAAS Press Room for photocopying so we could all have copies. As I recall, it was double-spaced and filled with scores of changes Carl had made, right up to delivery, in his own hand.

Sagan's ten-part dissection that day of Velikovsky's arguments is still being debated. It continues to stimulate strong philosophical interest. But I deeply admired Sagan's willingness and determination to take on the ideas of one of the era's most influential and intelligent pseudoscientists—and to read Velikovsky's books carefully and to write such an extended critique and present it in such a public forum. Until then few scientists were willing to do such things. To my mind this was one of the seminal moments in establishing a new tradition of scientists and scientific-minded scholars publicly committing time and effort to examining—not ignoring—extraordinary claims of a pseudoscientific, fringe-scientific, or paranormal nature.

Later that same year came Philip J. Klass's book *UFOs Explained*, patiently and thoroughly examining some of the most prominent UFO and flying saucer claims.

The next year things really got into high gear. Larry Kusche published *The Bermuda Triangle Mystery Solved*, still

today regarded (correctly in my view) as one of the classic debunking books of all time. (Debunking is the *end result*; Kusche hates to be characterized as a debunker; he just wanted to find out the truth, and he did.) That same year James ("The Amazing") Randi published his book *The Magic of Uri Geller*, the first exposé of Geller's methods and tricks.

And then in the September/October 1975 issue of *The Humanist*, at the behest of its editor, the S.U.N.Y Buffalo professor of philosophy Paul Kurtz, came "Objections to Astrology," a statement straightforwardly cautioning the public "against the unquestioning acceptance of the predictions and advice given privately and publicly by astrologers." The two-page statement was written by the noted University of Arizona astronomer Bark J. Bok with the help of science writer Lawrence Jerome and Kurtz. It was signed by 192 leading scientists (including nineteen Nobel Prize winners) and accompanied by two supporting articles, including Bok's "A Critical Look at Astrology." Such was the public appeal of astrology at that time that this fairly mild statement of objections ignited a firestorm of publicity and controversy.

Something big was happening. The scientific examination of widely accepted claims that to scientists were at best, misguided, and at worst, totally bogus, was now a major news story and a part of the new cultural debate.

In the meantime, James Randi, psychologist Ray Hyman, and Martin Gardner—a hero already to many for his classic book *Fads and Fallacies in the Name of Science*—were discussing among themselves some kind of organization that could address such claims. But they had no experience in creating organizations.

Enter Paul Kurtz. Kurtz's experience with the "Objections to Astrology" statement had impressed on him the need for scientific and scholarly examinations of paranormal and fringe-science claims of wide popular appeal. Kurtz was concerned about this uncritical acceptance and the lack of scholarly rebuttal. And he was an organizational genius.

Paul, Lee Nisbet (who had recently gotten his PhD in philosophy), and sociologist Marcello Truzzi organized and publicized an unusual conference at the brand new suburban Amherst campus of S.U.N.Y. Buffalo. It was titled "The New Irrationalisms: Antiscience and Pseudoscience." Held May 1, 1976, it brought together the leading lights of scientific skepticism of the time to air their scientific viewpoints about all the bizarre claims then in the wind.

James Randi, psychologist Ray Hyman, and Martin Gardner—a hero already to many for his classic book *Fads and Fallacies in the Name of Science*—were discussing among themselves some kind of organization that could address such claims. But they had no experience in creating organizations.

Like the AAAS Velikovsky symposium, it was electric. And it was here that the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP) was founded. The news media widely covered the event (including the *New York Times*, *Science* magazine, *Time*, and my own cover article in *Science News*).

Kurtz, Randi, Gardner, Hyman, and Truzzi were on the original CSICOP Executive Council. So were Phil Klass and Nisbet. Sagan was one of the founding fellows. So was Isaac Asimov. So were a number of other famous scientists and scholars (including, by my count, eight professors of philosophy in addition to Kurtz and Nisbet). Truzzi was the first editor of CSICOP's journal, initially called *The Zetetic*. I succeeded him the next year, and in 1978 we renamed it the Skeptical Inquirer. I've told the fuller story of this beginning of the modern-day skeptical movement many times so I won't say much more here.

There was one earlier organization I should mention—Belgium's Comité Para. It was formed in 1949 and has been in existence ever since.

(My invited 8,400-word history of the first two decades of CSICOP, published in *The Encyclopedia of the Paranormal* [G. Stein, ed., Prometheus Books, 1996], is now online on our committee's website at www.csicop.org/about/csicop. And yes, I know that there is a long record of skeptical activity preceding the 1970s. If you think *I'm* taking a long perspective, then I recommend reading our skeptic colleague Daniel Loxton's detailed online article "Why Is There a Skeptical Movement? Part One: Two Millennia of Paranormal Skepticism," 2013, at www.skeptic.com.)

But for the English-speaking world, CSICOP was the first well-organized and broadly constituted organization to examine paranormal and fringe-science claims from a scientific viewpoint—and to serve as a forum for scholarly discussion of all the relevant academic, social, and educational issues surrounding them.

The idea quickly spread. Skepticism was in the air. CSICOP helped found or inspire local and regional skeptics groups in the U.S. around the same ideas and principles. The Bay Area Skeptics were the first, but soon there were dozens of others. Inspired by CSICOP, they were independent and

autonomous and excellently situated to deal with local and regional issues.

But Kurtz was an internationalist, and he actively encouraged forming similar groups in countries worldwide. He had a lively mind, tremendous energy, strong intellectual credentials, academic position, a global vision, and the bearing and instincts of a diplomat—combined (almost incongruously for an academic) with the skills of a first-class promoter. All this made for an effective and inspiring figure who easily gathered scientists, scholars, investigators, and supporters from all parts of the world to help fight the proliferation of pseudoscience and unreason.

It has never been easy. We have had our epic battles and setbacks. But we always persevered. We intend to continue to do so. We have always had the involvement and support of the world's scientific and academic communities.

Somewhere along the way back then, in 1980, the Australian Skeptics got started when Dick Smith brought Randi to Australia to test claims of water diviners. Starting with our Winter 1980–81 issue of SI, we began listing "Australia" among the "sections" of the Committee. The contacts were Mark Plummer . . . and Dick Smith. I also notice that the group's fine magazine, *The Skeptic*, which I read with great interest every issue, has just completed Volume 34. (Mark Plummer later moved to the United States and became executive director of CSICOP from 1987–1989. He was succeeded by Barry Karr, in that position ever since.) Since then the Australian Skeptics have been carrying out the fight on that continent. They have been one of the world's strongest national skeptic groups.

The United Kingdom's magazine *The Skeptic* came along a bit later (it is now in Volume 26). Together these three major English-language journals of scientific skepticism have combined to bring informed critical inquiry to audiences in all hemispheres. Add to them all the other journals and other countries, such as Germany's *Skeptiker* and the Netherland's *Skepter*, and the developed world, anyway, is well covered.

Now I zoom ahead. We continued, as Kurtz wrote after our first five years, "to encourage the spirit of scientific inquiry and to cultivate the skeptical attitude and the quest for evidence and reason" (Paul Kurtz, "From the Chairman," SI, Spring 1981, 2–4).

We have now concluded our thirty-eighth year. Our January/February 2015 issue began Volume 39 . . . then it's on to 40. Over that time we have done our best to keep aglow the light of reason and rationality and to cultivate scientific thinking in the wider public. We have critically examined thousands of individual claims and assertions and published the results for the world to see. We have explored virtually every issue important to skeptics. We have encouraged greater skepticism in the news media and served them as a source of reliable scientific information. We have done our best to make others aware of the dangers to democracy posed by confusions between reality and fantasy, sense and nonsense, and real science and its pretenders and adversaries.

It has never been easy. We have had our epic battles and setbacks. But we always persevered. We intend to continue to do so. We have always had the involvement and support of the world's scientific and academic communities. Scientists and scholars—and tireless writers and investigators—contribute their energy, expertise, and scholarship to critically examine claims and explore all the social, political, scientific, philosophical, and educational issues surrounding them. Good-spirited people everywhere crave responsibly, scientifically evaluated information and perspective. We scientific skeptics, no matter where we labor, in cooperation with researchers in dozens of academic fields, help provide that.

In 1995, SI gave up its digest-sized format for a more traditional magazine format and increased its frequency from quarterly to bimonthly. This has allowed us to be more timely and topical and to publish more editorial material. Another big change came in 2006. We shortened our name from the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP) to the Committee for Skeptical Inquiry, keeping our first three initials, CSI. That old twenty-syllable name just didn't work anymore in this age of TV and radio sound bites. Also many of us were increasingly uncomfortable with having the word "paranormal" in our name, even if it was clear we were *examining* the "paranormal." We also broadened our mission statement to "investigation of controversial or extraordinary claims" (see the January/February 2007 SI).

For our first sixteen years, CSICOP was the only such national group in the United States. In 1992 came Michael Shermer's Skeptics Society and its new quarterly magazine, *Skeptic*. This enterprise, too, had its roots in CSICOP's outreach activities, getting its start from solicitations to SI's Southern California mailing list to what was then a regional Los Angeles–based group. Since then there have been *two* major skeptic magazines in the U.S. (not counting the many newsletters by local groups). As for the U.K., we have always been closely associated with its magazine *The Skeptic*, publishing it out of Amherst for several years until just this past year when we handed it back over to the U.K. Skeptics. However, we still do the layout and design work.

Over our first thirty years, CSICOP held major conferences about every

year and a half, usually near a major university and in conjunction with relevant academic departments such as physics, psychology, and philosophy. These tended to be very substantive conferences, close to academic in tone but (given our subject matter) dealing with far more controversial and emotional (and interesting!) topics. They were great fun as well. They gave science-minded skeptics from all over a chance to get together. Then for a time starting in about 2005, and for reasons hard to explain, that tradition went into a seven-year hiatus. James Randi's JREF (James Randi Educational Foundation) began filling that gap with a new series of popular conferences, TAM, held in Las Vegas.

We resumed our conferences in October 2011 with CSICon 1 in New Orleans and CSICon 2 in Nashville in October 2012. In 2013, our conference was a joint "Summit" conference in Tacoma, Washington, with our supporting organization, the Center for Inquiry, and our sister organization, the Council for Secular Humanism. Our next will also be a joint conference, at our founding location, Amherst, New York, June 11–14, 2015.

Paul Kurtz founded all these organizations. He built the Center for Inquiry's headquarters building, across the street from the University at Buffalo, where most of CSI's and CSH's activities are located. (Some of us have always worked elsewhere; in this Internet age having everyone at one central location is no longer essential.)

For about five years, from 2007 to 2011, the combined organization went through an agonizing period, as we transitioned to new leadership. We had a single charismatic founder we all loved and respected, but he couldn't go on forever. Paul was in his eighties then. For some years the boards of the three organizations had worked with him to try to come up with a succession plan. We all knew replacing such a remarkable visionary was nearly impossible. We tried various ideas but none got far. I am on those boards. I can tell you the whole process was extraordinarily painful for everyone involved.

Now, I am pleased to say, things have stabilized again. In fact they have been stable for a few years now. Ronald A. Lindsay is the president and CEO of the combined organization(s). He is a strong defender of secularism and scientific skepticism. He has been a calm and steady force. Like Paul, Ron has a PhD in philosophy, but he also has a law degree, increasingly relevant in these times. His book *The Necessity of Secularism* was published in December (see New and Notable, page 59). The CFI Board, chaired by Eddie Tabash, a civil liberties lawyer deeply dedicated to our causes, has also taken a much more active role to ensure the longtime vitality of the organization. Barry Karr, who has thirty years of service with us and is strongly dedicated to the skeptic mission, remains CSI's executive director. And as a brain trust, we have the CSI Executive Council (its newest members are physicians Harriet Hall and Steve Novella) and about a hundred prominent fellows, elected for their distinguished contributions to science and skepticism. And, I am glad to say, we are a much more diverse organization than when we started. For a long time now many outstanding women scientific skeptics have been deeply involved.

(One more thing: As announced in this issue's cover wrap, effective January 8, 2015, CSI and CSH have formally become programs within the Center for Inquiry. No significant effects on the Skeptical Inquirer or CSI's activities are expected.)

Paul Kurtz, the extraordinarily gifted and pragmatic philosopher who created the world's leading organizations for scientific skepticism and secular humanism, died October 20, 2012, two months short of his eighty-seventh birthday. He was my mentor and my friend. I was privileged to be an invited speaker at a memorial service the Kurtz family put on at the University at Buffalo December 1, 2012. There were so many tributes that they went on the entire day.

The need for informed scientific skepticism has never waned. But the circumstances in which we now operate have greatly changed. The Internet has led to the proliferation of pseudoscientific claims . . . but also to an opportunity to reach wider audiences, quickly, with good science and informed rebuttals. An example is Skeptical Inquirer's Facebook page. I don't run it (Barry Karr does), so I feel free to praise it unreservedly. It is a wonderful, lively way to keep up with daily developments not just in scientific skepticism but in science as well.

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What once was a fairly homogeneous and organized set of skeptical activities has now become a much more diverse, prolific, and fragmented situation. Young people and women can easily enter and create their own niches, and that is good for everyone. Many disparate groups have sprung up. Some have no connection with each other or any sense of the history of this movement. Countless investigators and skeptics of all stripes now have their own blogs and online columns. Whole new forums have been created, such as the popular *Skeptics Guide to the Universe* podcast by the extraordinary Steven Novella and his brothers. Not to mention our own organization's

popular podcast of in-depth interviews, *Point of Inquiry*.

It is getting harder and harder to keep up. But for the most part all this is a healthy proliferation of skepticism.

Opinion is always easy, but facts and evidence, historical and cultural perspective, and a mature, scientific viewpoint are still most needed. That requires considerable discipline and work. In SI we've always tried to live up to high standards of inquiry—state things carefully, let the facts speak for themselves, provide thorough documentation, avoid personal attacks, etc. At CSI and in SI, we are at least a *semi*-scholarly journal and we also do professional scientific journalism—strongly investigative, hard-nosed to be sure, but still professional. In this age of personal blogs and posts, it sometimes seems that these kinds of standards have gone out the window. I think they remain important. And most good scientific skeptics *do* try to adhere to them. (If you want to pursue this more, there is still no better guide than Ray Hyman's classic "Proper Criticism," on our website at http://www.csicop.org/si/show/proper_criticism/.)

In my remaining space I want to touch briefly on some other issues:

Specific claims vs. broader issues: Good scientific skepticism needs to deal with the entire spectrum. The nitty-gritty, down-in-the-trenches investigations into popular mysteries are an essential core; scholarly examinations of how we think and how we believe and how our preconceptions and beliefs affect our perceptions and acceptance of new information are another key component; still broader overviews bringing historical or philosophical perspective to the quest are another. I think good skepticism requires working at all these levels. I see no contradictions among them or any need to consider one less important. Some skeptics are more comfortable focusing mostly on one of these arenas. Scientific skepticism is a big tent and works best when it embraces contributions from many different perspectives.

Popular vs. scholarly: Same comment. SI has always spanned the entire spectrum, from popular claims to all those serious issues where pseudoscientific beliefs mislead and even greatly endanger the public and affect education and the place of science in society. We treat them all.

Science vs. religion: All skeptic organizations have their own policies for dealing with matters of religion (or not). Ours in SI has always been to emphasize areas where religious doctrine makes empirical, testable claims and where scientific study and scholarship can bring new insights and perspective. This may seem a limitation, but these are surprisingly rich fields. Our occasional science and religion special issues always prompt a huge, and largely positive, reader response. One more point: What we scientific skeptics have in common with our colleagues who identify more as humanists or atheists is an intense distaste for dogma. Dogma is the *real* enemy of reason.

Climate science: We've been involved in this topic, in which an important area of science has been under persistent attack, since 2007. Some skeptics may consider it not to be our fight. But I see it as little different from defending the teaching of evolutionary science from attacks by the religious right. In this case, the most vociferous attacks come for a variety of other ideological reasons, but the distortions and even denials of science are part of a pattern we've seen in many other areas. I think they require skeptics' attention.

I also note that the temporary leveling off of annual average mean *surface* temperatures that contrarians misleadingly call a pause in global warming (the oceans are *definitely* warming) may not be in evidence much longer. According to NASA, NOAA, and the Japan Meteorological Agency, September 2014 was the warmest September worldwide since records began in 1880, and the period October 2013 through September 2014 was the hottest twelve-month period ever in that same climate record. In the meantime, the oceans are warming. The summer of 2014 saw the highest global mean sea surface temperatures since systematic measuring started.) (See "Five Things to Know about 2014 Global Temperatures," NOAA's climate.gov., Oct. 24, 2014, and "Warmest Oceans Ever Recorded," University of Hawaii release, Nov. 14, 2014.) In January, NASA and NOAA confirmed that 2014 was indeed the warmest year on record.

Good science is, as always, how we gain greater understanding.

I have written several times previously (most recently in the November/December 2013 SI) about the higher values of skepticism. I end on that note. What we are ultimately defending here are a variety of liberties essential to enlightened societies and functional democracies: freedom of inquiry and expression at all levels; science as the most reliable guide to truth about the natural world; a love of learning and questioning; respect for human rights and dignity; the right to learn, and to study, and to investigate unfettered by any authoritarian interference; free and open discussion of all issues; and the idea that hard-won new knowledge—while it always raises new issues and problems—is essential for continuing human progress.

Good scientific skepticism ultimately contributes to all these goals. I am proud to be part of that effort. You should be too. ■

Kendrick Frazier is editor of the Skeptical Inquirer and author or editor of ten books, most recently the SI anthology *Science Under Siege*. He is a fellow and a member of the Executive Council of the Committee for Skeptical Inquiry and a board member of the Center for Inquiry. A shorter version of this commentary was given as a talk at the Australian Skeptics National Convention, Sydney, Australia, November 28–30, 2014.

The Case of *Gorter v. SKEPP*:

Court Says: 'Quack' Can Be Called 'Quack' Again

WILLEM BETZ

On September 30, 2014, the Brussels Court of Appeal gave its final ruling in the case of Dr. Gorter v. W. Betz, L. Bonneux, and the nonprofit Belgian skeptical organization SKEPP, regarding an article criticizing Gorter's cancer treatments. In this elaborate judgment, the court ruled in favor of the authors across the board. Consequently, the original uncensored article will be put back up on our website. Will this be the final chapter in a saga that has been going on for ten years?

In 2004, SKEPP received an email from a cancer patient organization (www.diagnose-kanker.nl), asking us to give our opinion on the treatments of a Dr. Robert Gorter, a Dutch national, who runs a "cancer clinic" in Cologne, Germany. He was advertising aggressively through lectures and a website. The advertisements promised cancer patients miraculously high chances of recovery (unattainable in regular medicine). Gorter calls this the "Cologne Model" and presents it as a groundbreaking science-based treatment. After thorough investigation, Dr. Bonneux and Dr. Betz, both SKEPP board members, wrote an article in Dutch, titled "Dr. Robert Gorter en zijn alternatief Centrum voor Kankerbehandeling" ("Dr. Robert Gorter and His Alternative Center for Cancer Treatment"), which was then published in SKEPP's quarterly magazine, on our website, and on the cancer patient organization's website.

In the article, we contested Gorter's assertion that his treatments are scientifically proven, calling it "a hodgepodge of untested therapies, fake and not harmless." We call it quackery, and we warn of Gorter's promise to patients that their health insurance will reimburse the costs of his services—a claim that is not supported by facts. We make it clear that patients pay a lot, while chances are high that they are simply being conned out of their money. The titles, specialties, and professorships Gorter claims to have—impressive though they may sound to a layman's ear—are put into perspective. We also point out that he experiments on people without fulfilling the statutory requirements of obtaining prior approval by an ethics committee as well as the duly informed patients' express consent.

In the article, we contested Gorter's assertion that his treatments are scientifically proven, calling it "a hodgepodge of untested therapies, fake and not harmless." We call it quackery, and we warn of Gorter's promise to patients that their health insurance will reimburse the costs of his services—a claim that is not supported by facts.

Soon after the article came out, we received a threatening letter from a law firm in The Netherlands demanding we take down the article immediately or face enormous damages and penalties. The cancer patient organization, wanting to play it safe, promptly removed the article, but we refused to be intimidated and left it up. We disregarded a second threatening letter and informed Dr. Gorter that he was most welcome to justify his treatments in the discussion section of our website, called the "open forum." We received no response and for some time, all was quiet.

First Judge, Antwerp Court of First Instance

In 2006, we were suddenly summoned to appear before the Court of First Instance in Antwerp. Gorter demanded complete removal of the article, as well as damages and sky-high penalties for each day of noncompliance. After a lengthy and extensive process of filing conclusions and evidence, we were acquitted by the court in 2009. The court ruled entirely in our favor, across the board. Public discussion of claims made by people who advertise boisterously is allowed.

Second Judge, Antwerp Court of Appeal

Gorter decided to lodge an appeal with the Court of Appeal in Antwerp. He again demanded removal of the article,

high penalties, expensive retractions in journals, and compensation for "loss of reputation and defamation of character." As claims, refutations, and counterclaims piled up, the case file kept on growing. Victims' testimonies and national and international experts' opinions were added as well.

We have here two scientists who seriously question the cancer-fighting methods used by the appellant, and who want to keep patients from turning to miracle treatments presented as effective, while there is no "scientific" proof of any beneficial effect in the treatment of cancer, or they are known to be pointless, or even potentially dangerous, or in an early research stage. The boundaries of the right to freedom of expression were not crossed in this regard.

In 2010, judgment was pronounced: Gorter's main demands were rejected, but we did have to omit some words and sentences from our article. Most curious was the verdict pertaining to the Dutch word *kwakzalver* (English: quack). Although the article clearly set out to state that the intended meaning was "selling or promoting useless treatments," and although this definition is the first one given in the leading dictionary, the *Grote Van Dale*, the court found that readers would most likely interpret this as "unlawful practice of medicine," so we were not allowed to call him a quack. The text of the judgment even seemed to suggest that we had come up with the definition ourselves, even though the reference and a copy of the entry in the *Van Dale* dictionary were attached to our conclusions. We were baffled.

And as a result, even though Gorter's demands were only partially met, we were required to pay all the court fees, both for the first and the second trial, to both the courts and Gorter, amounting to some 4,000 euros on top of our own expenses. We ended up paying this sum and censoring the article on our website as ordered. However, we were not the only ones taken aback by this ruling: the *Juristenkrant*, a journal for legal experts, ran an article on it, calling it a dangerous precedent and a curtailment of the right to freedom of expression. After careful consideration by the board, and on the advice of eminent legal experts, we decided to contest this ruling before the Court of Cassation.

Third Judge, Brussels Court of Cassation

In its ruling of January 12, 2012, the Brussels Court of Cassation shot the Antwerp Court of Appeal's verdict down in flames and nullified it, due to lack of motivation and failure to take into account the context, the target audience, and the social necessity (the full text in Dutch is available upon request from the authors), thus the first court's ruling became valid again.

Fourth Judge, Brussels Court of Appeal

The case was then referred to another Court of Appeal (in Brussels), where Gorter once again contested the first court's ruling. On September 30, 2014, judgment was pronounced. Almost line by line, the Court reiterated a number of verdicts given by the courts of first instance and the Court of Cassation. The court ruled entirely in our favor, and we don't need to censor any part of our text. So we are allowed to call a quack a quack again. The censored words and phrases will be put back on our website. This ruling will be of great importance as a legal precedent.

Some key excerpts from the motivation of this ruling:

Regarding freedom of expression:

> A restriction of the right to freedom of expression is necessary in a democratic society if it serves a compelling social necessity, provided that proportionality is observed between the means used and the intended purpose, and provided that the restriction is justified on relevant and adequate grounds. The court's decision must reflect that it has weighed the right to freedom of expression against other rights referred to in Article 10.2 of the ECHR (European Convention on Human Rights) such as the right to the protection of one's reputation, and also that the imposed restriction corresponds to a compelling social necessity and is pertinent, taking into account the context in which the opinion was expressed, the capacity of the parties and any other particular circumstances of the case. Furthermore, proportionality between the means used and the intended purpose is to be observed by the imposed restriction.

Regarding the meaning of words such as *quack*:

> When assessing an opinion, the judge must view said opinion in the context in which it was expressed. This means that, when wordings can have several different meanings, the meaning to be taken into account is the one that follows from the content and context of the publication, made clear and unambiguous by those wishing to engage in a societal debate on the basis of this publication.
>
> In such a context, the sole aim of using words such as "quack" and "quackery" is to inform audiences who are presented with a miracle treatment that they are being sold treatments or products the effects of which have not been proven, in order to avoid unrealistic hopes being created and in order to keep patients from choosing such a treatment without being fully aware of the fact that it is still in a research phase or may even be dangerous.

Regarding the criticism of Gorter's treatments expressed by Betz and Bonneux:

> This is a contribution of two doctors with an established reputation in the medical world. They refer to research in this field and to the pertinence of their statements and their criticism of the plaintiff's actions and behavior. It is therefore not a collection of frivolous ideas put forth at random. The plaintiff fails to demonstrate that the criticism was expressed by the defendants with the sole aim of maliciously harming the plaintiff. Any medical practitioners dabbling in experimental therapies in doing so expose themselves to criticism of these therapies and their treatment methods.
>
> The plaintiff advertises his therapies and treatments widely, thereby exposing himself to criticism and assessment of his practices. When a physician consciously chooses to give full publicity to his practices and puts them in a scientific context, referring to his scientific capacities, the boundaries of such criticism should be assessed more broadly.
>
> The expression of a negative opinion about the practical treatments offered by a physician exercising their professional activity does not constitute a tort, delict or quasi-delict, even when this criticism is expressed in harsh terms.
>
> We have here two scientists who seriously question the cancer-fighting methods used by the appellant, and who want to keep patients—who, as they state, are sometimes desperate—from turning to miracle treatments presented as effective, while there is no "scientific" proof of any beneficial effect in the treatment of cancer, or they are known to be pointless, or even potentially dangerous, or in an early research stage.
>
> The boundaries of the right to freedom of expression were not crossed in this regard.

Regarding the treatments and the grandiloquent titles Gorter bestows upon himself and the testimonies given by the directors of the university cancer clinics of Leuven (Louvain), Brussels, Ghent, Rotterdam, and the Belgian Health Care Knowledge Center:

> Leading scientists, professors and oncologists have repeatedly and in no uncertain terms denounced the treatment methods used by the appellant. They have indicated that this person boasts of a scientific reputation he does not have—or which is, at the very least, disputed—and that he presents a medical context that does not exist either. They have invariably come to the same conclusion: the appellant is deceiving his patients—who, we should note, are in a very precarious situation—giving them false hope and experimenting on them without any form of verification. In light of all this, the wording of the contested passage cannot be said to cross any boundaries.

Regarding the passage where Gorter is likened to "the sort of quacks who manage to give themselves an aura of science":

> In section 3.6 of the current judgment, it has been conclusively demonstrated—by reproducing verbatim the correspondence with scientists working in this domain—that this finding corresponds with reality.

An important ruling, as a precedent:

> Patients' health, and their capacity to manage it, is paramount. Under these circumstances, the right to freedom of expression dictates that physicians who abuse medicine in any way can be condemned for doing so.

The Court concludes:

> The defendants have the right to freedom of expression. In exercising this right, they have not crossed any boundaries. They have not behaved frivolously and they have acted as can be expected from any prudent person placed under the same circumstances. When it comes to public health in general, and personal health in particular, the right to honest information takes precedence over the appellant's personal interests, such as the right to have one's good name and reputation respected. The criticism expressed by the defendants shows nothing more than their desire to inform patients—who are in a very precarious situation as it is, because of their illness—as accurately as possible, by means of all known medical resources at hand, and to familiarize them with a specific specialty domain. They have not acted with the sole intention of harming the appellant, as the latter has attempted to demonstrate. The passages objected to in particular by the appellant make up the very core of the entire text, so the aforementioned principles obviously apply to the entire text.

The appellant's claim is therefore deemed unfounded, and consequently, this Court confirms the contested ruling in its entirety.

So the judgment pronounced after the second appeal (after Cassation) puts us in the right, across the board. Hopefully, this will be the end of a saga that has been going on for ten years now. Gorter could file another appeal with the Court of Cassation, or he could bring the case before the European Court, but given the scathing words of the ruling, that seems unlikely.

Gorter is ordered to pay all court fees, including those for the previous trials, but that will certainly not cover all of our expenses. The question remains whether we'll ever recover some of the costs we've incurred. ■

Acknowledgments

The author wishes to thank the directors of the university cancer clinics of Leuven (Louvain), Brussels and Ghent, of the Belgian Health Care Knowledge Center, and of the Rotterdam Erasmus Clinic for their selfless assistance in sending us their written opinions on Gorter's treatments, Gorter's patients and former employees who were brave enough to provide us with their testimonies, Mr. Stücker and the members of the IOZK Clinic in Cologne for their testimony, and our lawyers, who have worked hard, all the while trying to minimize the costs. Also, many thanks go out to the legal experts behind the scenes, for selflessly providing us with documentation and advice. Thanks to Mick De Meyer and Douglas W. Kinney for the English translation.

Willem Betz, MD, is professor of medicine, emeritus, at the University of Brussels. He is one of the founders of the Belgian skeptical organization SKEPP and is also a fellow of the Committee for Skeptical Inquiry.

Africa's Satanic Panic

Evangelical Christianity and traditional belief systems clash in modernizing African nations

MARC E. FITCH

Fears of Satanic cults, witches, and demon possession are once again in the news, only this time it's not happening in the United States. The southern regions of Africa have been experiencing their own Satanic Panic, similar to the one in the United States in the 1980s and early 1990s. Most notably, Namibia and South Africa have been seeing school children, families, preachers, and the ostracized accused of witchcraft, demonic possession, and black magic in service of Satan. Most recently, the South African newspaper *The Sowetan* reported the case of two school children expelled from multiple schools due to fears that they will somehow "affect other children with Satanism" (Mazibila 2014a). This has put anxious villagers in opposition to government officials who believe that the children have a right to an education. The girls are rumored to be able to kill people with just a touch. Their mother claims the rumor was begun by a classmate. Regardless, their safety is now threatened and they are unable to return to school (Mazibila 2014b).

In Namibia, church leaders warned against the presence of Satanic cults following discovery of what appeared to be an animal sacrifice and bonfire and "a surge in Satanic activity here following several apparently unnatural manifestations in church services over the past few weeks, including a woman crawling like a snake and children showing signs of alleged demonic possession" (Ekongo 2011). Satanism topped the list of teacher concerns in Namibia with the teachers reporting demonic possession, students browsing Satanic websites, and children being attacked by invisible demons in the middle of class. Random accidents, suicides, and murders are all being blamed on Satanic activity, and often the blame lands on the victims' family members or neighbors (Beaukes 2014).

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Obviously the Western world has a history of its very own witch hunts, particularly in Europe in the sixteenth and seventeenth centuries and in a less violent era in the United States in the 1980s dubbed "The Satanic Panic." It is interesting to note the similarities between these two times in Western culture and what is currently happening in Africa.

The most obvious component is the mingling of Christianity into a population that has largely been tribal and based on a variety of ancient, pre-modern belief systems that deal with different deities and rituals. Similar to the witch hunts of Europe, when the Church clashed with pre-Christian healing and medicine, the trend in these African states is that of Christianity pushing back against the beliefs of the indigenous population. During the witch hunts, often-ostracized female members of the community were accused of witchcraft based on their use of traditional healing methods and beliefs left over from the pre-Christian era, particularly in what is now Germany. Christianity has become the overwhelming majority religion in these African nations and is thus treating the traditional beliefs and rituals with fear and seeing them as the work of the Devil. This is most evident in the recent burning of seven accused "witches" in Tanzania by twenty-three villagers, who were then arrested by authorities (SAPA 2014; see also, Benjamin Radford, "Witch Hunts Lead to Murders in Tanzania and India," SI, January/February 2015). Obviously, the execution of accused witches occurred in pre-modern Europe, and the nasty incident in Salem, Massachusetts, but there exists one major difference between the witch hunts of Europe and the current witch hunts in Africa: namely, that the government is largely trying to end this practice. During the European witch hunt it was the authorities that were often going into villages to prosecute accused witches and sentence them.

The African witch hunts are almost entirely generated in the villages and public rather than in the governments. Many authorities in these countries are making a strenuous effort to derail these incidents and beliefs in Satanism and witchcraft.

Local pastors in these countries, however, are adding fuel to the fire, proclaiming Satanism to be prevalent in the communities and causing grave harm and spiritual danger to the Christian flock. Early Christianity had the tendency to label anything that wasn't a part of a major established religion such as Judaism or Islam as being Satanic. Thus the traditional belief systems of the native Africans are viewed through a Satanic lens as being "other." Indeed, the name "Satan" means "adversary." The pre-modern beliefs of the local tribes present an adversary to the influx of Christianity and modernism in these African countries.

It is interesting to note, however, that the term *Satanism* plays such a prominent role in these accusations and beliefs. Whereas the Catholic Church in Europe during the time of the witch hunts were more concerned with "witches" (implying that it was mostly focused on women conducting rituals and making pacts with Satan), the African Satanic Panic is more focused on Satanism, similar to America's own Satanic Panic in the 1980s and early 1990s. America's Satanic Panic largely emerged from an Evangelical base and was fueled by media, police, psychologists, psychiatrists, pastors, and rumors. Its focus was less on the feminine-associated witchcraft and more focused on Satanism as something practiced by young men and heavy-metal bands. America's panic was largely a combination of Evangelical beliefs and the authorities who used almost any accusation and scant evidence as a reason to arrest and bring to trial men and women suspected of Satanism or Satanic ritual abuse, as it was so often labeled.

Mando Mengi, fifteen, ran away from home when he was accused of witchcraft and now lives in a children's home in Kinshasa, Congo. Witchcraft allegations are now the number one cause of child homelessness in Congo's capital. (Shashank Bengali/MCT)

In this sense, it would appear that the authorities in these African nations are more prescient and understanding of these past events than the authorities in either the European witch hunts or America's Satanic Panic. They appear to be making efforts to curb beliefs and fears in these populations and prosecuting those who take the law in their own hands in the name of superstition and religion. However, local pastors, who often have more influence than the government, continue to rally the public and proclaim Satanism as a blight threatening their society. The European witch hunts can largely be seen as the result of a religious culture pushing back against modernization of the coming Enlightenment. It would appear that the development and modernization of Africa through the influx of capitalism and liberalism is also seeing a similar backlash in the form of Christian superstition and panic over the "Adversary." ■

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Oh, who doesn't love a good case of pareidolia? Whether it is the Virgin Mary spotted on a turtle shell or the face of Jesus on a tortilla shell (banana, tree stump, etc.), we love to, indeed we are programmed to, look for patterns and familiar shapes in random stimuli or chaotic data. To commemorate the centennial of the birth of Martin Gardner, one of the greatest figures in modern scientific skepticism, we are republishing several of his classic Skeptical Inquirer "Notes of a Fringe-Watcher" columns. In this column, "The Great Stone Face and Other Nonmysteries" from our Fall 1985 issue, Martin takes us on a tour of various cases of pareidolia with particular emphasis on the alleged "Face on Mars" that nearly became a popular culture icon (until later, higher resolution NASA spacecraft imagery confirmed, as scientists already knew, it was all a play of light and shadows). So read this article, and then go outside and take a look up at the clouds. Have yourself a little fun and try and see who might be looking down at you.

The Great Stone Face and Other Nonmysteries

MARTIN GARDNER

Clouds often take the shapes of animals and human faces. The same is true of rock formations, such as the Great Stone Face in the White Mountains of New Hampshire, made famous by Hawthorne's tale. Draw a wiggly vertical line. It's easy to find spots where you can add a few more lines to make the profile of a face. On the left and right sides of the maple leaf on the Canadian flag you'll see the faces of two men (liberal and conservative?) arguing with each other. A few decades ago the Canadian dollar bill had to be re-engraved because the face of a demon accidentally turned up in the Queen's hair just behind her left ear.

This tendency of chaotic shapes to form patterns vaguely resembling familiar things is responsible for one of the most absurd books ever written about advertising: *Subliminal Seduction*, by journalist Wilson Bryan Key (Prentice Hall, 1973). The Signet paperback had on its cover a photograph of an ice-filled cocktail with the caption "Are you sexually aroused by this picture?" It was the author's contention that hundreds of advertising photographs are carefully retouched to "embed" concealed pictures designed to shock your unconscious and thereby help you remember the product. The hidden pictures include words ranging from sex to the most taboo of four-letter words, but there are also phallic symbols and all sorts of other eroticisms. In the ice-cube in an ad for Sprite, the author professed to see a nude woman cohabiting with a shaggy dog. It's hard to imagine anyone taking this nonsense seriously, especially since the author's many references to "recent studies" never disclosed where they took place or who the experimenter was. More amazing still, the Canadian Catholic philosopher Marshall McLuhan wrote the book's laudatory introduction. Key has gone on to write two even more bizarre books about the sneaky ways modern advertising is subliminally seducing us.

More recently, UFO enthusiasts have been playing the hidden-picture game with the moon and Mars. They pore over thousands of photographs of cratered surfaces until—aha!—they find something suggesting the presence of alien creatures. An early anticipation of this pastime occurred in 1953, when H. Percy Wilkins, a retired British moon-mapper, discovered what looked like a man made bridge on the moon. Frank Edwards wrote about it in *Stranger Than Science* (1959), and UFO cranks lost no time seizing on this as evidence of lunar life. Donald Keyhoe in *The Flying Saucer Conspiracy* (1955), reported that spectroscopic analysis had identified the bridge's metal! When astronomer Donald Menzel said he couldn't see the bridge. Keyhoe called him an "army stooge" collaborating on a vast government conspiracy to conceal the truth about UFOs. (See James Oberg's article, "Myths and Mysteries of the Moon," in *Fate*, September 1980.)

As late as 1976 UFO buff George H. Leonard was claiming that bridges on the moon are among the "least controversial things about the moon." Alas, all bridges vanished when the Apollo photographs were obtained. The "bridges" were nothing more than illusions created by lights and shadows, yet the myth of moon bridges still persists in UFO fringe literature.

The same thing happened to mysterious spires on the moon. Photos in 1966 of the moon's surface showed objects casting such long shadows that UFOlogists decided they had to be rocket ships or radio beacons—at least something built by aliens. A Russian periodical called *Technology and Youth* featured a wild article about the spires in its May 1968 issue. The spires turned out to be ordinary boulders, their long shadows caused by the sunlight hitting them at extremely low angles.

George Leonard, in *Somebody Else Is on the Moon* (David McKay 1976), carried this kind of speculation to such extremes that he managed to write one of the funniest books ever written by a UFO buff. Leonard is an amateur astronomer and retired public-health official in Rockville, Maryland. Photos of the moon's surface, he insists, show rims of craters sliced away by giant machines, jets of soil spraying out (caused by mining operations), and tracks of huge vehicles. "No, I do not know who they are," Leonard told the tabloid *Midnight* (February 8, 1977), "where they come from or precisely what their purpose is. But I do know the government is suppressing the discovery from the American people."

Leonard quotes an unnamed NASA scientist: "A lot of people at the top are scared." He thinks the aliens live underground and that seismic quakes on the moon are caused by their undersurface activities. "NASA is simply lying to the American people about UFOs." he told *Midnight*. He suspects the aliens are waiting patiently to take over the earth after we blow ourselves up.

Seeing familiar anomalies on Mars has

been common ever since the invention of the telescope. Percival Lowell found the red planet's surface so honeycombed with canals that he wrote three books about how the Martians, desperately in need of water, built the canals to bring water from polar regions. Now, of course, we know the canals were only figments in Lowell's mind, distinguished astronomer though he was. Unfortunately, this has not deterred seemingly intelligent people from similar self-deception.

Here and there on Mars are formations with grid-like structures. "Did NASA Photograph Ruins of an Ancient City on Mars?" is the headline of a *National Enquirer* article (October 25, 1977). A photo of a region near Mars's south pole shows a series of square-like formations called "Inca City" because they somewhat resemble a decayed Indian village.

In 1977, electrical engineer Vincent DiPietro came across a 1976 photograph taken by the Viking spacecraft that orbited Mars. At first he thought it was a hoax. The photograph showed a remarkably human-looking stone face about a mile wide. NASA had released the photo shortly after it was taken in 1976 and planetary scientists emphasized that it was a natural formation. DiPietro thinks it isn't. Computer scientist Gregory Molenaar used image enhancement to explore details of the face, and in 1982 DiPietro and Molenaar published a 77-page book, *Unusual Martian Surface Features*, about their results. ("Face in Space," *Omni*, April 1982, was an excerpt from this book.) The authors concede that the face may have been produced by erosion but they suspect otherwise. They claim that computer enhancement shows an eyeball in the face's right eye cavity, with a pupil near the center, and what looks like a teardrop below the eye. "If this object was a natural formation," they write, "the amount of detail makes Nature herself a very intelligent being."

West of the big stone face, in the shadow of a pyramid-like formation, is a grid-like pattern suggesting a lost city with an avenue leading toward the face. (See "Metropolis on Mars," an unsigned article in *Omni*, March 1985). Skeptics have pointed out that the so-called pyramid is much cruder than scores of pyramids found as natural rock formations in Arizona.

Top drumbeater for the view that the stone face proves that an alien race once flourished on Mars is writer Richard Hoagland. He is completing a book about it that could make him lots of money, especially if he can tie the face into UFOs and get a chapter published in *Omni*. Fred Golden, writing the "Skeptical Eye" page in *Discover* (April 1985) ridiculed Hoagland's claims and ran a photo of another spot on Mars, where the topography resembles Kermit the Frog.

Let us not underestimate the public's scientific illiteracy. Dr. Emil Gaverluk. of East Flat Rock, N.C., is now lecturing around the country about the Martian face. A story in the Hendersonville, N.C., newspaper of February 16, 1985, reported that Dr. Gaverluk was speaking at the First Baptist Church on "the meaning of the gigantic face and pyramids and the laser of tremendous power that have been discovered on Mars." Why are these things on Mars? It's all explained in the Bible, Dr. Gaverluk told the newspaper columnist who wrote about him.

Dr. Gaverluk was identified as an expert on communications science and the holder of a doctorate in educational technology, whatever that is. His lectures on science and faith are sponsored by the School Assembly Service of Chicago. Dr. Gaverluk illustrates his talks with chalk drawings. He is a member of the American Association for the Advancement of Science and the Creation Research Society.

The great stone face can teach a serious lesson. If you search any kind of chaotic data, it is easy to find combinations that seem remarkable. Every page of a book of random numbers contains patterns with enormous odds against them if you were to specify the pattern before generating the random numbers. Every bridge hand you are dealt would be a stupendous miracle if you had written down its exact pattern before the deck was shuffled.

Let someone close his eyes and talk for fifteen minutes about a scene he imagines. You'll have no trouble finding amazing correlations between his description and any randomly selected scenic spot. Let a psychic crime-solver rattle on for an hour about clues to a missing corpse. It's inevitable she'll have made some lucky hits if and when the body is found. If you don't have a tape of everything she told the police, how can you evaluate her accuracy? Jeane Dixon's few good hits seem impressive until you see a list of her thousands of whopping misses.

If hundreds of ESP tests are performed around the world during any given week, and only a few successful ones are published, the normal operations of chance are effectively concealed. J. B. Rhine was notorious in his belief that unsuccessful tests in his laboratory were not worth reporting; and equally notorious during his youth in finding patterns in data to support correlations that the experiment had not been designed to find. Today's better parapsychologists are aware of such statistical pitfalls, but a failure to understand them casts a deceptively strong glow of success over the results trumpeted in the early naive years of modern parapsychology.

Let's take a closer look at that great stone face on Mars. Rotate the picture 90 degrees clockwise and what do you see? On the left is the nude torso of a woman, complete with dark pubic hair, small breasts, and an enlarged belly button slightly off center. I'm surprised Ken Frazier would allow such a picture in his family magazine. ■

[INVESTIGATIVE FILES JOE NICKELL
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The New Pope Saints

On April 27, 2014, two former popes—John XXIII (Angelo Roncalli, 1881–1963) and John Paul II (Karol Wojtyla, 1920–2005)—were made saints of the Roman Catholic Church. As such, they are believed to have acquired the supernatural power of intercession with God—that is, they may be prayed to in hopes of receiving some blessing, such as a cure for an illness. But how are saints created?

Making Saints

In the Christian tradition, a saint is someone with exceptional holiness. Before the end of the first century, those martyred for their faith (*martys* is Greek for "witness") were likely to be canonized. Over time, not only martyrs but missionaries of the faith, bishops of great zeal, Christian rulers, founders of religious orders, and others were raised to sainthood. Their tombs became pilgrimage sites, their relics believed to be imbued with magical power. (In this light the church has conserved a vial of John Paul II's blood and a piece of the skin of John XXIII.)

Three elements that came to identify a saint by the fifth century and that would eventually become codified in the canonization process were reputation (particularly as a martyr), legends (telling of exemplary virtue), and miracles (allegedly worked by the saint, especially posthumously) (Woodward 1990, 50–86). There came to be saints who exhibited, supposedly supernaturally, the wounds of Christ (St. Francis of Assisi, ca. 1181–1226, being the first of many), or who allegedly demonstrated such other remarkable powers as the ability to fly (Joseph of Copertino, 1603–1663) (Coulson 1960, 187–188, 276–277). When testimonials were needed to establish miracles for beatification (the first step in the process) or for canonization purposes, the faithful were happy to give them. For example, when the Church wished to certify that Hyacinth ("the Apostle of Poland," 1185–1257) had indeed walked on the water of the river Vistula, no fewer than 408 persons attested that they were able—centuries later—*to see the intended saint's footprints still remaining on the water* (Nickell 2014)!

John Paul II canonized numerous saints and beatified over 1,300 people—more than had all of his predecessors taken together. In 2008, following complaints that the congregation for the causes of saints was becoming a "saint factory," the Vatican instituted stricter procedures.

Healing Miracles

Today, two miracles are required for canonization (down from three—ironically by order of Pope John Paul II himself). The current preference is for healing miracles—no doubt in part because they are easier to obtain and less likely to involve magic tricks. (For instance, Padre Pìo's most famous "miracle"—exhibiting the stigmata, for which there is much evidence of trickery—was ignored, in favor of two alleged healings: one for beatification, the other for final canonization [Nickell 2013, 335–340].)

The major criterion for a healing to be classified as a miracle is that, in addition to being instantaneous and permanent, it be "medically inexplicable." This is an attempt to use negative evidence. Claimants are therefore engaging in a logical fallacy called *argumentum ad ignorantiam* "an argument from ignorance." That is, one cannot draw a conclusion from a lack of knowledge: "We don't know why her symptoms went away; therefore, it was a miracle."

In fact, such cases do have alternate explanations: some illnesses (such as multiple sclerosis) are known to show spontaneous remission. Other "cures" may be attributable to misdiagnosis, psychosomatic conditions, prior medical treatment, the body's own healing power, and other effects. Some illnesses and their cures may be faked, for a variety of reasons (Nickell 2013, 175–222).

It was thus two requisite "medically inexplicable" cures that qualified to make Pope John Paul II a saint. Only one was required for Pope John XXIII, a second being waived (as discussed later). Here we look at each in turn, beginning with John Paul.

Parkinson's 'Miracle'

For years before he was diagnosed in 2001, Pope John Paul II had been observed with symptoms of apparent Parkinson's disease. By 1996, he was unable to walk without the aid of a stick, and he could not control the tremors of his left hand. Media speculation prompted the Vatican to admit that the pope suffered from an "extrapyramidal neurological disorder"—referring to the family of degenerative nervous disorders to which Parkinson's belongs, without actually using the term itself ("Poperazzi problems" 1996; "Vatican" 2006).

With added knee and hip debilities, the ailing pope visited Lourdes, the French healing shrine, in August 2004. Far from being healed, he struggled through Mass, gasping and trembling. In a rare reference to his own condition, he assured other ill pilgrims that he shared their suffering. Poignant as was that statement, it nevertheless underscored the fact that the claimed healing powers of Lourdes—and of various other shrines he visited, prayers he made, and holy relics he kissed—were ineffective, even for the head of the church that promotes claims of such miracles. He died the following year.

If the proverb "Physician heal thyself" (Luke 4:23) should seem to apply, to the embarrassment of the Church and the pope's legacy, one can therefore appreciate the irony of a case that seems to vanquish the problem. That is the supposedly instantaneous and permanent cure—from Parkinson's itself, no less—bestowed on a French nun after she prayed to the late pontiff.

If this sounds too good to be true, it may well be. The nun—who first wished to remain anonymous—was Sister Marie Simon-Pierre Normand, who worked at a hospital in Paris. Beginning in 2001, she and the pope would share a series of remarkable coincidences (if such they were) that would ultimately seem revealing:

Onset. In June 2001, no doubt well aware of speculation that the pope's tremors indicated Parkinson's, she was herself diagnosed with the disease. Subsequently, she said, "It was difficult for me to watch John Paul II on television." Engaging in magical thinking, she added, "However, I felt very close to him in prayer and knew he could understand what I was going through."

Location. She states that "The disease had affected the whole left side of my body, creating great difficulties for me as I am left-handed." The location was noteworthy, since, as we have seen, the pope had been observed by 1996 with an uncontrollable tremor in his left hand.

Development. "After three years," she says (the pope's diagnosis being acknowledged by the Vatican in 2003) she experienced "an aggravation of the symptoms."

In a rare reference to his own condition, Pope John Paul II assured other ill pilgrims that he shared their suffering. Poignant as was that statement, it nevertheless underscored the fact that the claimed healing powers of Lourdes—and of various other shrines he visited, prayers he made, and holy relics he kissed—were ineffective, even for the head of the church that promotes claims of such miracles.

Worsening Condition. Strikingly, beginning on April 2, 2005—*the very day of the pope's death*—her condition "began to worsen" and continued to do so "week by week."

"Miracle." Finally, after Pope Benedict XVI initiated the cause to beatify John Paul, and all the nun's sisters throughout France and Africa began to pray for her to be cured by the late pontiff's intercession, she suddenly experienced a remission of her symptoms during the night of June 23, 2005, the feast of the Sacred Heart of Jesus. Thereupon she stopped taking her medicines (Sister Marie 2011; Pope John Paul II 2014). As she would later tell a reporter, "I am cured, but it is up to the church to say whether it was a miracle or not" (qtd. in Pope John Paul II 2014).

As these continuous parallels suggest, Sister Marie's reputed Parkinson's disease seems to have been eerily responsive to John Paul's. Could it have been a copycat phenomenon? I am not suggesting malingering, but rather *conversion disorder* (previously called hysteria). This is a neurotic reaction wherein a person's anxiety is converted *unconsciously* into any of a great variety of symptoms, including blindness, deafness, muteness, vertigo, paralysis (sometimes affecting only one side of the body), motor symptoms such as tics and tremors, and many, many others. Conversion symptoms may stem from an immature personality, may bring the patient certain benefits such as attention or sympathy, and may be eliminated by suggestion or narcosis (Goldenson 1970, 260–263). I have personally investigated an outbreak of several cases of twitching illness that were diagnosed as conversion disorder (Nickell 2012).

Now, true Parkinson's disease is a brain disorder that usually afflicts the elderly, being most prevalent among those aged seventy-five to eighty-five (Taber's 2001, 1519). Its common symptoms include tremors, slow movement, stiffness, cramped handwriting, and other signs. However, it can be difficult to accurately diagnose because there are other conditions with similar

symptoms, according to the National Parkinson Foundation ("About Parkinson's" 2006).

As reported by *The Guardian* (citing a Polish newspaper), three years after Sister Marie claimed to have been miraculously healed she had relapsed. The paper stated "that the 49-year-old nun had become sick again with the same illness" (Hooper 2010). One of the doctors investigating her case was of the opinion that she had not actually suffered from Parkinson's, observing that a similar nervous disease could go into remission. Whatever the actual facts of the matter, the nun's "miracle" claim was ultimately accepted, and in January 2011 Pope John Paul II was beatified. Only one more miracle was required for sainthood.

Reportedly, in April 2011 Diaz walked into a San Jose hospital complaining of headaches. A neurosurgeon diagnosed an aneurysm, which he felt was inoperable. He sent her home to rest and to take medication for pain. In short order, however, she was healed, according to her doctors. She attributed the "miracle" to her gaze having fallen upon a photograph of John Paul in a newspaper. Later she would say she heard the image speak to her, "Stand up. Don't be afraid." She has since abandoned both law studies and work for her family's security company in order to devote herself exclusively to being the symbol of faith she has become ("Woman allegedly healed" 2014).

While the Associated Press wrote of "the symptoms that she felt brought her to the brink of death three years ago" ("Woman allegedly healed" 2014), Diaz may have had an exaggerated view of her own prognosis at the time. In fact, a cerebral fusiform aneurysm, like she supposedly had, *does not usually rupture* ("Intracranial aneurysm" 2014). And because high blood pressure is associated with cerebral aneurysms, reducing it (and other associative factors such as smoking, drinking, and using cocaine) may well be therapeutic.

Diaz states that she ignores those who doubt her alleged healing. "Everyone can think what they want," she told an Associated Press reporter. "What I know is that I am healthy." Given the paucity of information released about Diaz's diagnosis, it may be that the "inexplicable" nature of her alleged aneurysm is due to a lack of conclusive evidence for it in the first place. In any event, the argument from medical inexplicability is an "argument from ignorance," pure and simple.

Mrs. Capitani, who died in 2010 at age sixty-eight, obviously benefitted from several successful surgeries. It was not a miracle by the deceased Pope John XXIII that removed her stomach tumors; it was medical science.

Aneurysm 'Miracle'

The second miracle attributed to John Paul's intercession was also somewhat suspicious in its manifestation: It took place on May 1, 2011, "just after" *the actual rite of beatification* for the late pope (Pope John Paul II 2014).

The patient was a Costa Rican woman named Floribeth Mora Diaz, who was reportedly healed of a "cerebral fusiform aneurysm." That is an abnormal, localized dilation of a blood vessel in the brain; *fusiform* refers to the blood vessel walls dilating approximately equally all around, forming a symmetrically tubular swelling (*Taber's* 2001).

Stomach 'Miracle'

A single "miracle" is attributed to Pope John Paul XXIII. A second miracle—usually required for canonization—was waived by Pope Francis, on the basis of John's having called the historic Second Vatican Council (1962–1965), which dramatically changed the church. As with the miracles attributed to John Paul II, the reputed miracle—which occurred in 1966 after an Italian nun suffered unexplained stomach hemorrhages—seemed suspiciously ironic: Pope John had himself died of stomach cancer, despite the church's healing shrines, relics, and other touted mechanisms.

The nun, Sister Caterina Capitani, was hospitalized and underwent a five-hour operation to remove most of her tumor-studded stomach, along with her pancreas and spleen. Over several days she began to recover but noticed that a fistula (an abnormal opening) had developed on her abdomen, allowing gastric fluid, blood, and a little orange juice she had sipped, to flow out. Later she covered the area with a relic—a piece of the sheet upon which Pope John XXIII had died. Still later, she awakened to a vision of the dead pontiff and found herself healed. She ate ravenously and subsequently returned to a normal life (Allegri 2014).

In fact, Mrs. Capitani, who died in 2010 at age sixty-eight, obviously benefitted from several successful surgeries. It was not a miracle by the deceased Pope John XXIII that removed her stomach tumors; it was medical science. As to the alleged fistula, it may have been nonexistent, a mistaken claim to explain stomach contents that appeared on her abdomen but that may have simply resulted from "a serious crisis of vomiting." Capitani

had a "very high fever" and may have misperceived the situation. She is the source of the second-hand claim, attributed to an unnamed doctor and apparently not otherwise documented (Allegri 2014). Alternately, if it actually existed, the wound had eleven days to heal naturally. Her experience of seeing Pope John standing beside her bed and speaking to her is consistent with a waking dream (which occurs between being fully asleep and awake). As she herself admitted, "I wondered whether it had been a dream" (Allegri 2014).

Conclusions

As these examples demonstrate, there is invariably more to miracle claims than first meets the eye. What is truly objectionable are miraculists' attempts to trump modern medical science—not only by downplaying science's role in cures but by choosing remarkable cases so as to emphasize their supposedly "medically inexplicable" nature. No matter how well-intentioned, by attempting to assert superiority over science with supernatural claims and the illogic of arguing from ignorance, one succeeds only in promoting superstition. ■

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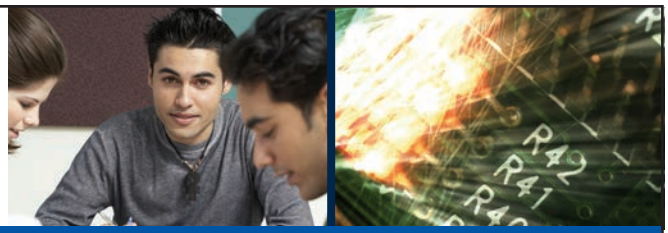

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Sheaffer's "Psychic Vibrations" column has appeared in the SKEPTICAL INQUIRER for nearly forty years; its highlights have now been published as a book (Create Space, 2011). Sheaffer blogs at www.BadUFOs.com, and his website is www.debunker.com.

Scientist Photographs Plastic Alien at Area 51

Boyd Bushman of Tucson, Arizona, was a retired senior scientist for Lockheed Martin whose career spanned over forty years. He held several patents. Shortly before he passed away on August 7, 2014, he made a video that is being called a "deathbed confession" relating his alleged experiences with Area 51, UFOs, aliens, and anti-gravity.

The video of Bushman's UFO claims had been played well over a million times on YouTube before it was removed because of copyright infringement claims (the claim was likely spurious). The thirty-two-minute video turned up a few other places on YouTube but was also removed. You can see highlights of the video on this page: http://goo.gl/9OP04m (probably a good idea, as the thirty-two-minute version was very tedious).

The website of the famous late-night paranormal talkmeister Art Bell proclaimed "Dying Senior Scientist Reveals Insider Truth About Area 51, Aliens, UFO's and Anti-Gravity" (http://goo.gl/Um5ojl). Bushman's principal claims, as summarized by YouTube commenter Nuno Reis (comments since removed, along with the video), are:

> Some UFOs and Aliens are stationed at the base.
>
> He explains that from space there is a special flight path to Area 51.
>
> With their advanced technology they can travel much faster than light. The aliens who control these ships come from a planet 68 light years from Earth. (And, they make the journey of 68 light years in about 45 minutes!!)
>
> The aliens who are working at the base are about 1.5 meters long and up to 230 years old.
>
> They have five fingers, which are 30 percent longer than ours, and five toes, which are stuck together.
>
> They have three ribs on each side and three vertebral columns.
>
> The aliens communicate through telepathy.
>
> Finally, Bushman reveals that Area 51 is working together with the Russians and the Chinese and their research is mainly focused to anti-gravity.

YouTube

Boyd Bushman in the YouTube video.

Bushman also claims that in 1947 a U.S. Air Force pilot shot down a flying saucer over New Mexico, killing several aliens. The military, of course, recovered the craft. Most interesting are all the photos, supposedly of UFOs and aliens that he claims his friend took at Area 51 using a camera he provided. In fact, Bushman claimed that his camera was given to the aliens, who obligingly took photos out the window during a UFO trip, then returned his camera (although it's doubtful that the aliens, traveling so much faster than light, could actually see anything). Weirdest of all is a "spirit photo" that supposedly shows the ghost of a dead alien.

However, as soon as Bushman's video was posted on the popular UFO site The Black Vault, others began submitting photos and even a video of seemingly identical aliens—albeit plastic ones.

YouTube user John Hutchison (JonnOfMars) posted a video showing a toy alien he purchased several years back (http://www.youtube.com/watch?v=2FPQL9qoZ9I). Hutchison was involved with some of Bushman's

earlier videos, so this "coincidence" cries out for explanation.

However, not everyone was willing to accept that Bushman's close encounter was of the plastic kind. Perhaps the plastic aliens are amazingly accurate representations of the real ones? Some have even suggested that the toy alien could be intended as a step toward "disclosure" of real aliens: "Who knows how and to whom these things are revealed?" Standing Occam's razor on its head, some people are insisting that unless skeptics can specify the alien doll's exact manufacturer and information about when and where it was sold, then we should presume Bushman's photos show a real alien.

Bushman's involvement with Lockheed Martin has, of course, again raised the old canard that Ben Rich, former director of the Lockheed Skunk Works (developers of highly classified secret aircraft) supposedly said in at least one of his lectures that "We already have the means to travel among the stars, but these technologies are locked up in black projects, and it would take an act of God to ever get them out to benefit humanity. . . . Anything you can imagine, we already know how to do." This quote, however, has never been authenticated.

Aviation historian Peter Merlin has the full story in his article in Tim Printy's *Sunlite* E-zine (Volume 5, number 6, p. 17). In brief, it seems that Rich liked to make jokes about ETs in his lectures to entertain his audiences, such as "The Skunk Works has been assigned the task of getting E.T. back home." Anyone taking such comments seriously has completely misunderstood their context.

* * *

Dr. James E. McDonald (1920–1971) was a noted atmospheric scientist at the University of Arizona in Tucson, but today he is best known for his tireless advocacy of UFOs. More controversial than most UFO advocates, McDonald's methods were confrontational, and he did not get along well even with many who shared his beliefs about UFOs, such as J. Allen Hynek and Jacques Vallee. McDonald came under intense scrutiny and criticism from arch UFO skeptic Philip J. Klass (1919–2005), who not only criticized inconsistencies in McDonald's statements but also accused him of misusing funds from his Office of Naval Research science contracts to conduct his UFO research (the criticism turned out to be correct—McDonald quite deliberately blurred the line between "atmospheric science" and "UFO research"). This has led to irresponsible suggestions that Klass somehow "hounded" McDonald to his tragic suicide. As we will see below, McDonald's suicide didn't have anything to do with Klass or UFOs.

Now, thanks to researcher John Greenwald Jr., the FBI's files on McDonald released to Greenwald are now available on Greenwald's online repository of declassified government documents, The Black Vault (http://goo.gl/sQP9iY).

Interestingly, we see the FBI expressing little interest and no concern over McDonald's involvement with UFO claims. Remember, these FBI papers were secret at the time they were written, and nobody expected them to someday be released. If a government UFO cover-up existed, we'd expect to find statements like "He's getting too close to learning our secrets, we must stop him."

However, we see that the FBI was indeed concerned over McDonald's minimal contact with someone (whose name is redacted) known to have involvement with Soviet intelligence (see pages 6–9). They apparently concluded that it did not mean much but were interested to check up anyway. During the Cold War it was not at all unusual for Soviet "diplomats" or scientists in the U.S. to make contact with leading American scientists and engineers to potentially learn as much as they could about the latest developments in U.S. science and technology. Philip J. Klass was approached by such individuals, and this is reflected in Klass's own FBI files.

In fact, it appears that McDonald's minimal contact with Soviet interests

Standing Occam's razor on its head, some people are insisting that unless skeptics can specify the alien doll's exact manufacturer and information about when and where it was sold, then we should presume Bushman's photos show a real alien.

wikipedia

Dr. James E. McDonald

This was the height of the Vietnam War, and while most anti-war protests were peaceful and perfectly legal, at least some groups were bent on fomenting violence and revolution.

involved UFO research via the United Nations! As we read on p. 26,

> [redacted; obviously an FBI source at the University of Arizona] said that he has no doubt whatsoever of the subject's loyalty to this country. He said he feels certain the subject's contact with the Soviet representative at the UN Secretariat in mid-1968 in connection with the subject's "UFO studies" was completely innocuous. . . . At this point it does not appear that an interview of Professor MCDONALD would be productive and could possibly result in embarrassment to the Bureau.

In all likelihood, McDonald was simply asking the Soviets for any UFO information they might have, a perfectly innocent and reasonable query. The FBI seemed inclined to drop the matter, except for one concern. As we read on p. 10:

> It appears that Professor MC DONALD's letter to [redacted1: probably the Soviet representative at the UN] (contents of which are not known) might have been in itself an innocuous, sincere contact on the part of Professor MC DONALD; however, in view of his background and [redacted2] long time leadership in "New Left" activities in the Tucson area, it is quite probable that Professor MC DONALD would be highly susceptible to an approach made by a Soviet intelligence, particularly concerning a research done in his field, of atmospheric physics.

It is virtually certain that "[redacted2]"originally read "his wife's." About six months after McDonald's suicide, UFO author and researcher Jacques Vallee wrote in his diary, now published as *Forbidden Science* (Vol II, pp. 110–111):

> Mike Jaffe reached Betsy McDonald in Tucson; they had coffee together and compared their life stories. The truth is that it wasn't because of his eyes that Jim McDonald had been put in the hospital. His first suicide attempt had left him blind, and there was nothing the doctors could do about it. Instead he was hospitalized for psychiatric treatment, to try and prevent a new phase of depression...
>
> The note he left for Betsy said he was sorry he hadn't found her at home when he came to pick up the money. He left instructions to gather the rest of the cash and dispose of the gun. Jim killed himself out of frustration and love. His wife had gone headlong into politics. She belonged to a radical leftist group, not unlike the Venceremos at Stanford. *They gave out weapons to Black revolutionaries* [emphasis added].

This was the height of the Vietnam War, and while most anti-war protests were peaceful and perfectly legal, at least some groups were bent on fomenting violence and revolution. And these groups were being watched very closely by the FBI.

Another obvious reference to Betsy McDonald is on p. 31 of the FBI file:

> In October 1968, [redacted: obviously Betsy McDonald] reportedly attended the SDS National Convention in Boulder, Colorado, and was overheard telling a group in Tucson upon her return that she favored violence, if necessary, to achieve the goals of the SDS.

Quoting a redacted source from the U of A, an FBI paper from May 26, 1969, states (p. 11):

> he recently received information that Professor JAMES E. MC DONALD is "disenchanted" with [redacted, probably "his wife's"] constant "New Left" activities and they plan to separate.

On p. 23, the redactor slipped a bit, and left "Subject's wife" in the text:

> Applicant-type investigation of subject in 1962, favorable re loyalty, character, and reputation. Subject's wife is active in Students for a Democratic Society and peace movement. Subject is disenchanted with [redacted: probably "his wife's"] "New Left" activities and separation planned.

Vallee's diary entry (referenced above) concluded:

> Jim plunged into his research: UFOs, effects of supersonic transports on the atmosphere, the possible destruction of the ozone layer. . . . He did it out of despair, with no humor, no ability to distance himself from what he was studying. Jim had even researched his own case very scientifically, as he did everything: He had gathered detailed statistics about suicide.

Other papers hint at other problems the FBI had with McDonald (p. 44–63). Apparently he had signed a petition in 1961 of the Fair Play for Cuba Committee (soon to be made notorious by one of its zealots, Lee Harvey Oswald), protesting the U.S. "hostility" to Cuba, and calling for an end to the trade embargo (p. 67). McDonald was also involved with the ACLU, which the FBI apparently considered a subversive organization. Worse yet, he had been a public critic of the Air Force as far back as 1959, concerning its placement of intercontinental ballistic missile (ICBM) sites near Tucson. He claimed this placed civilian populations in unnecessary danger in the event of war.

One thing that was not found in the McDonald FBI files: any reference whatsoever to Philip J. Klass. ■

[NOTES ON A STRANGE WORLD MASSIMO POLIDORO

Massimo Polidoro is an investigator of the paranormal, lecturer, and cofounder and head of CICAP, the Italian skeptics group. His website is at www.massimopolidoro.com.

Enter the Boy Wonder, Part 1

Randi vs. Geller: How the Giant Battle Began

As announced in a previous column, I will be writing James Randi's biography. We are going to start a fundraising campaign shortly. If you want to support the project or just receive news and updates you can go to www.theamazingrandistory.com and subscribe to the mailing list. Meanwhile, here is part two of a sample from the book that I hope you will enjoy.

It was a warm Tuesday morning in Rumson, New Jersey. Record-breaking warm weather had led many to expect a relatively warm winter. On that February 6, 1973, the thermometer indicated 64°F and rain was on the way.

Randi put on his usual raincoat—with one unusual addition—and left his house on Lennox Avenue to take the train at Red Bank's station to New York. Stashed in one of his coat pockets was a miniature tape recorder. Nobody had to know about it. This was going to be quite an interesting day.

Just a couple of days earlier, his friend Charlie Reynolds had called him. Randi was busy, going through accumulated correspondence, while listening to the radio for the latest news on the Watergate scandal. Nixon had just been reelected—with a crushing 60 percent of the vote—but what was coming out from the investigation was appalling and Randi thought there was no way the president could have been unaware of what those burglars were really up to. Randi listened with great interest, tapping away on his Selectric typewriter as the radio announcer described how the move toward impeachment was gaining momentum.

But then the news gave way to the latest pop music hit of the moment, Elton John's "Crocodile Rock," when the phone rang.

"Hello?" said Randi, keeping the phone between his shoulder and jawbone while he continued to bang away with his two index fingers. (His career might rely in part on his tremendous dexterity, but when it came to typing two fingers were enough for him.)

"Randi, this is Charlie. I've got some interesting news."

"Oh, yeah? Prove it."

Charlie reminded him about a psychic superstar who was becoming all the rage in Europe and who supposedly had performed under scientifically controlled conditions at Stanford Research Institute (SRI) out in California. "Remember I told you about him?"

"Would it be that Geller guy?"

"Yeah, Uri Geller. My good friend Peter Basch, who is also a photographer, was on assignment in Europe and saw Geller perform there. He told me he created a sensation on the continent. He supposedly stopped cable cars and escalators with his mind power and bent forks and keys by concentrating on them. . . ."[1]

"Right, *supposedly* being the key word," interjected Randi.

"Of course. Anyway, we got him to come over to the office, at *Time* magazine, and I thought you would be the perfect person to bring over. Would you by any chance be interested in dropping by?"

"Does Dolly Parton sleep on her back?" Randi quipped in response.

Charlie chuckled. "I thought so." He then went on explaining how the meeting had come about. The people at *Time* magazine had heard of Geller's tests in California, and sensing that he was likely to ride the current wave of interest in ESP and psychic phenomena to fame and fortune, wanted to run some kind of story on him. Apparently, it was not easy to get information on Uri's work at SRI; for some reason, everyone seemed reluctant to share. John Durniak, picture editor at *Time* and a very close friend of Charlie, had asked him if he could find a way to get Geller to come in for a meeting in New York.

After a few phone calls, Charlie was able to find a major TV network executive for whom Geller had performed. The executive told Charlie at length how a key had become "like taffy" in Geller's hands and had bent right in front of him, impressing everyone in the studio. Finally, the executive gave Charlie Uri's number.

"Careful, though," said the executive. "You should keep it private."

"Why?"

"Well, there are rumors around of a CIA plot to assassinate him."

Charlie was flabbergasted. "What?"

"Yeah, you know. His mind powers could blow up government computers. . . ."

Charlie found that Geller was staying in a town called Ossining, in Westchester County north of Manhattan. He was at the estate of parapsychologist Andrija Puharich, who had brought Geller to America from Israel.

"Sure!" said Puharich on the phone. "Geller will be delighted to be interviewed and perhaps even read a few minds and bend a few forks. Provided his powers are with him, of course."

Randi was thinking about all this, after arriving at Penn Station, while the cab was riding up on Madison toward the Time-Life headquarters. He felt like he might be wasting his time with just another flash-in-the-pan trickster who would be ushered promptly out into the cold. However, there could always be some surprises . . . you never knew.[2]

Time-Life was in a forty-eight-story building with green glass windows, right across from Radio City Music Hall. As he entered the sleek lobby with its serpentine pattern on the floor imitating Copacabana's sidewalk and the huge Mondrianesque painting on the wall, Randi remembered a scene from *Rosemary's Baby* that took place right in that spot. He chuckled out loud, thinking that some people would see that as a possible bad omen. "For Geller, maybe!" he thought to himself. He hadn't met anyone yet who truly had paranormal talent, and he didn't think he was going to today.

The shimmering stainless steel panels of the elevator opened and Randi stepped inside, pressed button 21, and started going through in his mind the ground rules he and Charlie had developed in view of the meeting.

Psychologist Ray Hyman was sent to investigate Geller on behalf of the Department of Defense. Hyman met and observed him up-close at SRI. He was not impressed, and had told as much to Randi's friend Martin Gardner. Hyman had explained, in detail, the self-proclaimed psychic's technique of creating chaos around him in order to misdirect attention. Now Randi was prepared.[3] He and Charlie had decided that no matter what happened in the room, their eyes would never leave Geller for a second.

Psychologist Ray Hyman was sent to investigate Geller on behalf of the Department of Defense. Hyman met and observed him up-close at SRI. He was not impressed, and had told as much to Randi's friend Martin Gardner.

Also, knowing Geller refused to perform in front of magicians, they had agreed not to tell anyone about Randi's real profession. To those who did not know him already, he would be introduced as a reporter—"Mr. Zwinge."

The meeting was in the magazine's picture department, in John Durniak's office. As he walked in, Randi noticed the lightboards for picture editing, file drawers, desks, and a big upholstered couch near the windows that looked out on 50th Street. His practiced eyes took in many details, not knowing yet which might be important later. On a table, several pads of paper and some cutlery had been assembled, with knives, forks, and spoons laid out carefully.

Many people were already there. Charlie greeted him and they made small talk with Durniak and Rita Quinn, one of the researchers in the photo department. Peter Basch was ready with his camera, and young secretaries and staffers were anxious to see the Israeli psychic perform. One older fellow stood firm with his arms folded, looking rather glum.

"That's Leon Jaroff, senior editor here," murmured Charlie.

"Doesn't seem to be having much fun."

"Well, he's very skeptical," explained Durniak. "He thinks that belief in the paranormal is less a function of intelligence than of psychological need.[4] He feels he's wasting his time here."

Randi sighed, thinking, "How I feel for him."

Durniak continued. "Leon told me he resented being called in and felt the matter belonged with the magazine's theater department, but since he was involved with the matter of SRI's participation in all this, he has to stay."

Suddenly, a mustachioed, frizzy-haired, "aging hippie" type walked in, introducing himself as Doctor Andrija Puharich, MD. Randi remembered having seen him in the past. Puharich had championed the supposed powers of Brazilian performer Arigo, who claimed he could perform operations on the sick by psychic means.

Randi had been publicly critical of psychic surgeons for years and, for a minute, thought that his cover was blown. But the doctor didn't react when introduced to "Mr. Zwinge," and went on explaining that Geller was in the other room, ready to start. "But I will not stay," he announced. "I will leave Uri here with you and then will leave the room, in case some of you suspect that we are in cahoots."[5]

Randi finally removed his coat and placed it on a chair nearby, while secretly turning the recorder on. He had decided not to tell even Charlie about it so as to avoid any awkwardness. He then picked up a yellow pad and a pencil and assumed a reporter-like pose, waiting for the psychic to arrive. A couple of minutes later, the "boy

wonder" himself entered the room.

"Wow!" was the immediate thought that popped into Randi's mind. Geller was only twenty-six at the time, slender in his psychedelic shirt and jeans, with a mane of long, dark hair and a contagious smile. He was strikingly handsome and exuded charisma from every pore. Following a quick greeting, Geller sat on the couch next to one of the secretaries. Charlie sat on a chair opposite him, while Randi maneuvered to be positioned behind him.

Durniak broke the ice. "So, Uri, do you feel like showing us something today?"

"Yes, I will try." Geller's accent was slight, and his English was precise and clear. He said he would like to start with some telepathy and asked one of the editors to draw a simple shape on a pad.

"I assure you," added Geller, "I won't look." He then proceeded to cover his eyes with his hand, but then stopped. "You too," he said to the girl sitting next to him. "Do like me and close your eyes to help me concentrate." She obeyed, and Geller again loosely covered his eyes with his fingers, and the editor started to make his drawing. Randi, standing right behind Geller, observed the movement of the pencil and easily guessed that the man had drawn a circle.

"You see," explained Geller with his eyes still covered, "I visualize a screen in my head and into this screen I have to get the drawing." The editor announced that he was finished. Geller took his hand off his face and sighed, as if he was not sure that things would work out.

"Now, close your eyes and try to visualize what you draw," he said. The editor complied and Geller started slowly moving a finger in the air as if tracing the contour of an imaginary drawing. "Not so fast, please!"

The comment drew some chuckles. Jaroff, in a corner, silently rolled his eyes up to the ceiling. Then Geller put his pencil on the pad and drew a couple of circles. Randi smiled and exchanged a quick glance with Charlie. Yes, they both knew what had just happened.

"Now," said Geller when he was finished. "This is what I got. Am I wrong? I am wrong, right?" He had almost an anguished look on his face, as if he was sad his new friends would be disappointed. But when the editor turned over his pad with a circle on it, Geller burst up with excitement. "Yes!" he exclaimed with a smile. "I did it!" He explained how in the laboratories at SRI he would do this kind of experiment while he was locked in a Faraday cage, a shielded room, while the scientists went ten miles away. "It blows their mind when I get the drawing!"

(To be continued in Part 2 in the next issue.)

Notes

1. Charlie Reynolds's telling of the episode comes mainly from his article: "The Making of a Psychic," *Popular Photography* (June 1974): 74–138 and from interviews with Kim Scheinberg.

2. Randi's personal story of the episode was originally told in his *The Magic of Uri Geller*, Ballantine Books, New York, 1975, 117–128, and verified by a signed statement, reproduced in the book, by four of the witnesses: Leon Jaroff, Rita Quinn, John Durniak, and Charlie Reynolds. The story was later enriched with further details from personal conversations with Randi conducted by Penn Jillette, Kim Scheinberg, and Massimo Polidoro.

3. Ray Hyman's detailed observations on his meeting with Uri Geller at Stanford Research Institute are contained in a letter to Martin Gardner dated December 28, 1972. The letter was then photocopied by mathematician Perci Diaconis while visiting Gardner's house, one of the first persons to own a duplicating machine, and distributed to close friends such as Randi and Reynolds, but also to some key individuals such as the MIT scientist and writer Philip Morrison, who wrote about this in a publication. Further information from personal communications by Hyman to Massimo Polidoro. See also: Ray Hyman, "The Case Against Parapsychology," *The Humanist* 37 (Nov/Dec 1977): 47–49.

4. Leon Jaroff's opinion is quoted in Ralph P. Davidson, "A Letter from the Publisher," *Time*, March 4, 1974, 2.

5. Andrija Puarich's version of the story is in his *Uri. A Journal of the Mystery of Uri Geller*, Bantam Books, New York, 1974, 190–192.

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SPECIAL ISSUE
SCIENCE AND RELIGION

[SKEPTICAL INQUIREE BENJAMIN RADFORD

Benjamin Radford is a research fellow at the Committee for Skeptical Inquiry and author or coauthor of seven books, including *Mysterious New Mexico: Miracles, Magic, and Monsters in the Land of Enchantment*.

The Skepticism of Clara Peller

Q: Who do you consider to be one of the most under-appreciated or neglected skeptics of the past few decades?

—L. Roe

A: That's an interesting question. There are many great, hard-working skeptics who are little-known outside of the skeptical community, and many more who are no longer with us. Historians of the skeptical community, such as Daniel Loxton and Tim Farley (author of the "Skeptical Anniversaries" piece on the last page of this magazine), have done an admirable job of keeping track of skeptical contributors over the years, and there are dozens of candidates.

But I'm going to go with a widely known pop culture figure who left a lasting (if unlikely) legacy of skepticism. I'm referring to Clara Peller (1902–1987), best known for her famous skeptical question, "Where's the Beef?" in ads for Wendy's hamburgers.

The ad, originally titled "Fluffy Bun," depicted three mild and unassuming white-haired grandmotherly types looking over a hamburger at a company called "Big Bun" whose giant bun obscured a tiny beef patty apparently about the size of a hockey puck. While the other two little old ladies politely poke around the fluffy bun looking for the meat, the diminutive Peller acts as the brash, outraged voice of directness and reason, uttering her immortal skeptical phrase: "Where's the Beef?" She plays the role of the boy who said the emperor has no clothes—the original outspoken skeptic.

In a follow-up commercial, while the two other ladies are on the phone debating what to say to the Big Bun manager about the tiny patty, Peller will have none of it; she grabs the phone and yells her signature line into the receiver so that her message is loud

Figure 1. The 1984 "Where's the Beef?" campaign spawned many pop culture items, including hats, T-shirts, stickers, and commemorative plates and cups featuring the skeptical catchphrase. From the author's collection, photo by the author.

Figure 2. A magazine advertisement for Wendy's in 2011 revived their classic twenty-seven-year-old "Where's the Beef?" slogan.

and clear. With no answer forthcoming from the manager, the trio then calls the president of Big Bun Incorporated with their grievance. The owner, a rich fat cat on a yacht named the S.S. Big Bun with a butler nearby and a bevy of beautiful women in the background, is literally bowled over by Peller's question. The catchphrase took aim at rival hamburger franchises McDonald's and Burger King, whose signature sandwiches contained less beef than Wendy's hamburgers.

Behind the Ad

In the documentary film *Art & Copy*, pioneering advertising executive Hal Riney stated—perhaps apocryphally—that "They tried to kill 'Where's the Beef?' a week before it was supposed to go on the air. The testing service said, 'Absolutely do not under any circumstances put that commercial on the air'" (Riney 2009). Yet of course they did, and it was later named one of the top ten advertising slogans of the twentieth century by *Ad Age* magazine.

Of course Peller—as iconic as she was in the role—was just the actress. "The 'Where's the beef?' commercial was written by Cliff Freeman and directed by Joe Sedelmaier for the Dancer Fitzgerald Sample agency. Wendy's parted ways with Ms. Peller a year after its debut, in the wake of her appearance in a spot for Prego Plus pasta sauce in which she declared: 'I found it! I really found it!' Although the Prego parent, Campbell Soup, sold no burgers, Wendy's said it believed that Ms. Peller 'can find the beef in only one place, and that is Wendy's.' She did not work for Wendy's again and died in 1987" (Elliott 2014).

When asked by Bryant Gumbel on *Today* why Clara Peller was so effective in the ads, commercial producer Sedelmaier responded, "Because she's real. Because Clara is Clara—she's not doing someone else." The feisty everywoman authenticity that Peller brought to the part is surely part of its appeal, as is the simplicity and directness of the line (which was originally "Where's all the beef?").

Beyond Wendy's

The commercial was a smash hit: "Hitting the airwaves on Jan. 10, 1984, 'Where's the Beef?' was an instant sensation, spawning a series of Peller-starring sequels along with a raft of merchandise, from T-shirts to bumper stickers to Frisbees to a board game [see Figure 1]. Peller even recorded a 'Where's the Beef?' novelty single with Nashville disc jockey Coyote McCloud" (Nemetz 2014).

The slogan later became a pop cultural shorthand for "Where's your proof?" or "Show me your evidence." This pretension-and-hype skewering slogan was adopted by Walter Mondale during the 1984 presidential primary race, and unlike other popular catchphrases whose expiry dates have long come and gone (Remember "Be Like Mike" and "Dude, You're Getting a Dell"?), "Where's the Beef?" is still widely used and recognized nearly a third of a century after its introduction. In a July 2, 2014, article in *ABQ Free Press*, a newspaper in Albuquerque, New Mexico, former governor Bill Richardson began an article: "'Where's the Beef?' The slogan from a 1984 hamburger chain ad could be resurrected to characterize the performance of Gov. Susana Martinez. That's because she has nothing to show for her four years but a dizzying downward in the state's economy . . ." (Richardson 2014).

Though "Where's the Beef?" has been embraced by politicians, many others have used it as well to describe promises unfulfilled. Theoretical physicist and science popularizer Michio Kaku invoked the phrase on September 12, 2011, in an *ABC Nightly News* discussion about unfulfilled promises of improving nuclear safety. Just two weeks later *The New York Times* featured an article about the "Where's the Beef?" campaign, and on the popular NBC comedy *30 Rock*, the lead character Liz Lemon (Tina Fey) states fondly in episode 516 (February 24, 2011) that she met Clara Peller. Wendy's briefly revived its slogan in a 2011 campaign (Figure 2), which also raised money for foster children.

The slogan's power comes from its no-bullshit simplicity and demand for directness, cutting through corporate advertising bluster and hype with three simple words. That this verbal challenge began as a commercial slogan does not detract from its importance or value to skepticism; many commercial slogans use and promote important positive messages, including Nike's inspirational "Just Do It!" and Dove's self-esteem building "Love the Skin You're In" phrases. Skeptics should embrace widely known skeptical phrases; "Where's the Beef?" is not only a versatile skeptical challenge but one of the best. ■

That this verbal challenge began as a commercial slogan does not detract from its importance or value to skepticism; many commercial slogans use and promote important positive messages.

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BEHIND THE MAGIC

An Interview with James Randi

KYLIE STURGESS

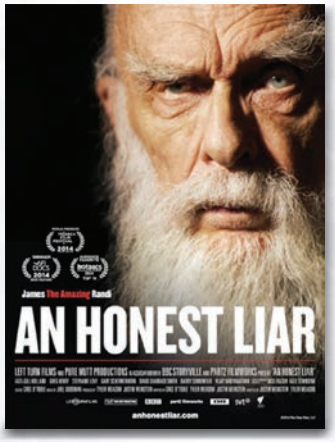
James Randi is the founder of the James Randi Educational Foundation (JREF). Formerly a professional stage magician ("The Amazing Randi"), he began to use his considerable experience in illusions and deceptions when studying the techniques, strategies, and tricks used by charlatans who pretend to have real supernatural powers.

An eighty-six-year-old skeptic, secular humanist, and atheist, Randi has investigated paranormal, occult, and supernatural claims for much of his career, including on *The Tonight Show Starring Johnny Carson* and the television program *Penn & Teller: Bullshit!* He is a founding fellow of the Committee for Skeptical Inquiry (formerly CSICOP) and was a longtime member of the original CSICOP Executive Council.

In 2012, documentary filmmakers Justin Weinstein and Tyler Measom began work on *An Honest Liar*, a profile of the life of The Amazing Randi, as he embarks on a series of public crusades to expose America's beloved psychics, mentalists, preachers, and faith healers with religious fervor. Along the way, the film shows how easily our perceptions can be fooled by magicians and con artists—and even documentaries. The film toured Australia in December. He was interviewed by csicop.org "Curiouser and Curiouser" columnist Kylie Sturgess. The interview is also online at http://www.csicop.org/specialarticles/show/behind_the_magic_interview_with_james_randi/.

I was one of those child prodigy things, and I didn't go to much of what we call in this country "grade school," the lower grades of school, because I was falling asleep all the time.

—James Randi



KYLIE STURGESS: You've led a very fascinating life—one that has resulted in a new documentary, called *An Honest Liar*. For those unfamiliar with your career, when did you first start as a magician?

JAMES RANDI: I started as a liar as a very, very tiny child, I can tell you that! It's hard to say . . . it's hard to say. I was one of those child prodigy things, and I didn't go to much of what we call in this country "grade school," the lower grades of school, because I was falling asleep all the time.

I was ahead of the class, and there's no great distinction. It's just that the educational system in Toronto, Canada—where I was born and almost raised—didn't have any limitations on whether or not I really had to go to school, because they figured I was getting a better education going to the museums and libraries that I inhabited as a small child.

I have a peculiar character. I'm different from most folks, and I rather treasure that fact, as well. Being a skeptic yourself, I guess you're looked upon that way by your peers as well?

STURGESS: Well, we get all sorts of fascinating people in skepticism! What led you to start an entire foundation for skeptics?

RANDI: I am a magician, you see, that's my profession. I have made my living up until a few years ago as a magician and did very well at it and got a bit of a reputation. I found that I was being asked questions by my audiences after a show; I would hope they would be more or less impressed with what I did as an entertainer! But they would come to me with questions like, "This

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I'm looking out of my window here in Plantation, Florida, and the street is right out there. I don't see any line up of people who are trying to collect the $1 million prize. Wouldn't you think that's strange, because there are thousands of them all across the world who say they have these mystical powers. *Where are they?*

—James Randi

gentleman was on television the other day, and he did this, that, and the other thing. But he said that that it was *real*, what he did."

It showed me that people were actually falling for fakers out there; people who were lying to them and telling them that they had supernatural powers. They were giving a lot of money to these people. That does happen of course—as you know, all over the world people were giving lots of money to people who'd say that they have psychic or magical or prophetic or whatever powers. They can tell the future, or they can heal the sick by just looking at them or touching them, or whatever.

I found that there was a major racket going on there, a swindle. I determined that when I retired—and I did retire at the age of sixty—I decided that it would be time for me to go into the business of . . . not *debunking*; I don't go do it as a debunker because I don't like that term. If I were a debunker that would mean that I'd go into an investigation with the idea, "This is not true and I'm going to prove that it's not true."

I can't always prove that it's not true, but I challenge them and offer a $1 million prize as well, to any of them who can prove that they are the real thing. You'd be surprised though. I'm looking out of my window here in Plantation, Florida, and the street is right out there. I don't see any line up of people who are trying to collect the $1 million prize.

Wouldn't you think that's strange, because there are thousands of them all across the world who say they have these mystical powers. *Where are they?* They should be lined up outside with a number in their hand, like a lottery of some kind, just waiting to get in and show me what they've got! But there's no lineup outside!

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STURGESS: What have been some highlights of your career?

RANDI: Every day! My life is all highlights, I think!

One of the most recent delights is the film, *An Honest Liar*, which you mentioned. It's being met with critical and popular acclaim all across the world. I am very, very pleased to know that and to witness it, and have people come to me saying, "Maybe it has changed my mind." That's always a good point when you see somebody saying, "Maybe I have changed my mind."

It doesn't happen every time, not by any means. But there are enough people out there who'd say that what I've shown them has changed their mind in some way or made them think a little more about some aspect of their lives and how they run it. Maybe it saves them a lot of money in the long run, too.

STURGESS: That's always a good thing! What was your response when you were first approached by the producers, Tyler Measom and Justin Weinstein, to do the documentary?

RANDI: First of all, I said I might be interested. I'd have to know more. They came to visit me here in Plantation, Florida. They sat down and they made a very good case for their bona fides. After all, both had produced films that were very highly successful documentary films.

When I saw the product that they had turned out, I thought to myself, "These are the guys. These are the guys that I think I can trust with my life story," and I said, "So, let's go." That was like three years ago, and we've done very well.

STURGESS: It's a fascinating movie with lots of footage from the past. Were you surprised even by your own history and what was uncovered for the film?

RANDI: In some cases yes, but for a long time now I've had a small collection of some stuff that was made. There were some 8mm black and white films made of me when I was only eighteen years of age, doing silly things in the streets of Toronto as a magician. Oh yes, that film comes back to haunt you eventually!

As a matter of fact, with a thing like YouTube—YouTube is in some cases pretty scary—because I don't think I really do anything in my life that it doesn't appear on YouTube within twenty minutes and circulated around the world.

If you go to my site, that's the James Randi Educational Foundation site on YouTube, you'll find all kinds of wonderful old films that I could hardly believe that somebody still had. My history is there. If you live long enough, your history will be there too, Kylie!

STURGESS: Me and my cat on YouTube! I'm not sure if that's as historically important as you performing on fantastic TV shows and helping people understand what's going on in the world of skepticism. It's a bit different. . . !

The documentary delves into your personal life, and of course there are many challenges that anyone would face if their own personal life was investigated. Did it make it challenging to go on with the documentary at times?

RANDI: Yeah, there was a moment there when the security of my partner Devi (José Alvarez) was in some question or such, and you'll see a confrontation there with the producers of the film. But that didn't last more than a day.

I had to just sleep on it, and the next day I called him and said, "Go right ahead, warts and all." You know the expression, "warts and all"? Oliver Cromwell, I believe, was supposed to have said that. I didn't know him. I'm not that old!

STURGESS: Finally, there's been lots of changes and developments and conflict in atheism and skepticism over the years. What do you hope for the future of organized skepticism?

RANDI: I would hope that it's going to continue to go the way that it has. The movement is very active within Australia, as I'm sure you know, and around the world. As I say, I've been to China and Japan and various other places like that. I find that it's really active all the way around the world. The mail I get every day—via Skype and other means of course—is always very encouraging.

It's very encouraging that skepticism has found its place in the world, and it's having a very active effect, I think, on most people. Particularly young people; it's very important to get people—as we all know, and always have known—get them while they're young, and if you can talk some sense into them at that point and get them scared correctly, then they will start to think skeptically. They will think rationally, and they will be happier off for it, I believe .

STURGESS: What do you think is an important overall message that you hope people will get from the documentary *An Honest Liar?*

RANDI: Before you accept it, remember that saying, "Maybe it's too good to be true." Think about it carefully, and look up research. You've got the Internet in front of you, what a wonderful weapon to have. I mean, this is something you can flourish anywhere at all that you can find an electric plug to fire up your computer with.

You can find information about things that at one time was very difficult to lay your hands on easily unless you went to a huge library and spent a lot of time clambering up and down ladders in the book stacks. Now it's so easily available to you—but you've got to be careful—at the same time some of that information is not information that you should be using, or that you could use, usefully.

It can be incorrect; there are people out there who are trying to take advantage of your ignorance and your lack of perception. Be very, very careful of that; you're living in a jungle!

STURGESS: Do you think even skepticism and skeptics themselves should be questioned?

RANDI: Oh, yes, of course. We need to know their bona fides as well. You have to check on them . . . but, when you've got people like Dick Smith and Phil Adams as good friends in another country or around the other side of the world, you could be very, very proud that you know these folks. When I was asked if I would go to Australia to cross the country and drag that film along with me, I accepted with great enthusiasm.

STURGESS: For your own future, after this fantastic travel across Australia, what do you hope to do next?

RANDI: Oh, I've got an awful lot ahead of me. I'm just finishing up my eleventh book. It's going to turn into two volumes, because it would probably be my swan song, as they say. But at the same time, I've got another one that's hanging on my consciousness here that I may do as well. But I'll let you know.

Kylie Sturgess is the host of the *Token Skeptic* podcast and regularly writes editorial material for numerous publications, the *Token Skeptic* blog, and the "Curiouser and Curiouser" column on our csicop.org website. An award-winning philosophy teacher, she has lectured on teaching critical thinking and anomalistic beliefs worldwide. In 2011, she was presented with the Secular Student Alliance Best Individual Activist Award, and she presented at the World Skeptics Congress 2012.

WHEN DON'T THE HIGHLY EDUCATED BELIEVE IN EVOLUTION?

The Bible Believers Effect

Among those who believe the Bible is the word of God, those with more formal education are *less* likely to believe in human evolution than those with less education.

CHARLES S. REICHARDT and IAN A. SAARI

Democrats and Republicans differ in their beliefs that humans contribute to global warming. According to a Pew poll conducted in 2008, only 28 percent of Republicans, compared to 58 percent of Democrats, believe humans contribute to global warming (Pew Research Center 2008; Mooney 2012). Also noteworthy, this gap between Democrats and Republicans is smaller among non-college graduates than among college graduates. Among non-college graduates, 31 percent of Republicans, compared to 52 percent of Democrats, believe humans contribute to global warming, which is a difference of 21 percentage points. But among college graduates, only 19 percent of Republicans, compared to 75 percent of Democrats, believe humans contribute to global warming, which is a difference of 56 percentage points.

If you examine these numbers carefully, you will notice something else interesting about the difference between Republicans and Democrats. Among Democrats, education is positively related to the belief that humans contribute to global warming. That is, 52 percent of non-college educated Democrats believe humans contribute to global warming, and that percentage climbs to 75 among college-educated Democrats. The more education Democrats have, the more they tend to believe humans contribute to global warming.

In contrast, the relationship between education and the belief that humans contribute to global warming is negative among Republicans. Among non-college educated Republicans, 31 percent believe humans contribute to global warming, and that percentage declines to 19 percent among Republicans with a college education. Assuming the overwhelming majority of climate scientists are correct that humans contribute to global warming, the beliefs of Republicans deviate more from the scientific evidence with more education.

A similar result, where the beliefs of those who have *more* education deviate further from scientific consensus than do the beliefs of those who have less education, arises among those who believe the Bible is the word of God. We call this the "Bible-believers" effect.

The Bible-Believers Effect

Those who believe the Bible is the word of God ("Bible believers") and those who don't believe the Bible is the word of God ("Bible nonbelievers") differ in their beliefs that humans evolved from earlier species of animals. Based on data from 2006 to 2012 in the General Social Survey (which is a nationally representative sample of American

Of those with less than a high school education, 31 percent of Bible believers and 56 percent of Bible nonbelievers believe in human evolution, which is a difference of 25 percentage points. But among those with graduate degrees, 10 percent of Bible believers and 79 percent of Bible nonbelievers believe in human evolution, which is a difference of 69 percentage points.

adults), 23 percent of those who believe the Bible is the word of God believe in human evolution, compared to 66 percent of those who don't believe the Bible is the word of God.[1] This gap in beliefs about human evolution increases with education: the gap is smaller for those with less education than for those with more education. For example, of those with less than a high school education, 31 percent of Bible believers and 56 percent of Bible nonbelievers believe in human evolution, which is a difference of 25 percentage points. But among those with graduate degrees, 10 percent of Bible believers and 79 percent of Bible nonbelievers believe in human evolution, which is a difference of 69 percentage points.

Figure 1 reveals the Bible-believer effect in greater detail. The top (solid) line in Figure 1 plots the percentage of Bible nonbelievers, at each level of educational attainment, who believe in human evolution. The bottom (dashed) line in Figure 1 plots the percentage of Bible believers, at each level of educational attainment, who believe in human evolution. As Figure 1 shows, education is positively related to belief in human evolution among Bible nonbelievers. That is, 56 percent of Bible nonbelievers without a high school education believe in human evolution, and that percentage climbs to 61, 68, 72, and 79 percent among Bible nonbelievers whose highest level of educational attainment is a high school degree, a junior college degree, a bachelor's degree, and a graduate degree, respectively. The more education Bible nonbelievers have, the more they tend to believe in human evolution. In contrast, the relationship between education and belief in human evolution among Bible believers is the reverse. That is, among Bible believers, the relationship between education and belief in human evolution is negative. Among Bible believers with less than a high school education, 31 percent believe in human evolution, and that percentage *declines* to 23, 18, 21, and 10 percent of Bible believers whose highest level of educational attainment is a high school degree, a junior college degree, a bachelor's degree, and a graduate degree, respectively. In other words, Bible believers' views about human evolution deviate more from the scientific evidence with more education.

The Bible-believers effect also arises when the belief the universe began with a huge explosion (the big bang) is substituted for the belief in human evolution. Belief in the big bang increases with education among Bible nonbelievers but decreases with education among Bible believers.

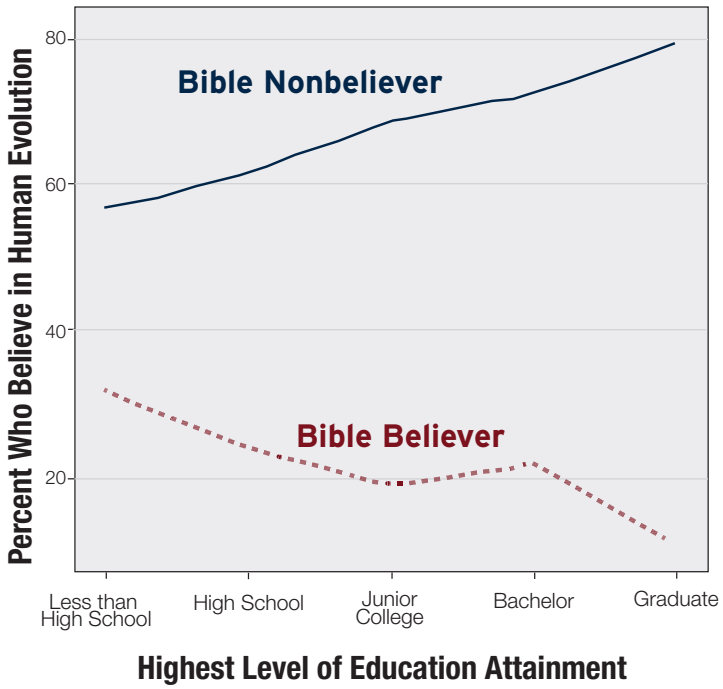

Figure 1: Percent of Bible nonbelievers and Bible believers who believe in human evolution for each level of educational attainment.

The stronger a person's commitment to religion (i.e., the more strongly the person holds core religious beliefs and the more frequently the person engages in religious practices) the more likely the person is to deny scientific facts (such as human evolution and the big bang theory) that conflict with the person's strongly held religious beliefs.

What Accounts for the Bible-Believers Effect?

The General Social Survey (GSS) data reveal several factors that are not the cause of the Bible-believers effect. The Bible-believers effect is not due to a relative lack of scientific literacy, in general, among highly educated Bible believers. For example, highly educated Bible believers are more likely than less highly educated Bible believers to know basic scientific facts concerning such things as viruses, radioactivity, and genetics. Highly educated Bible believers only repudiate highly selected scientific facts such as those concerning human evolution and the big bang theory.

The Bible-believers effect is also not due to a relative lack of appreciation of the scientific method by highly educated Bible believers. That is, highly educated Bible believers are more likely, than less highly educated Bible believers, to understand the scientific method.

The Bible-believers effect is also not due to a relative deficit among highly educated Bible believers in general reasoning skills. Highly educated Bible believers have better general reasoning skills than less highly educated Bible believers. Nor are highly educated Bible believers more likely to accept pseudoscientific beliefs, such as astrology, than less highly educated bible believers. For example, 48 percent of Bible believers who have less than a high school education believe astrology is not at all scientific, compared to 61, 68, 79 and 83 percent of those whose highest level of educational attainment is a high school degree, a junior college education, a bachelor's degree, and a graduate degree, respectively. Such a pattern of results would not arise if highly educated Bible believers were generally less skeptical than less highly educated Bible believers.

So the Bible-believers effect is not due to a relative deficit in general knowledge of scientific facts or the scientific method, cognitive skills, or pseudoscientific skepticism among highly educated Bible believers. But although these potential causes of the Bible-believers effect can be convincingly eliminated, what *is* the cause is less clear. Several potential explanations for the Bible-believers effect are plausible.

Strength of Religious Beliefs: The Bible-believers effect may be a consequence of the strength of religious beliefs and practices because highly educated Bible believers have stronger core religious beliefs and practices than do less highly educated Bible believers. For example, the GSS data set reveals that highly educated Bible believers pray more, attend religious services more, and report stronger religious affiliations than do less highly educated Bible believers. It is not clear why education is positively related to religious commitment among Bible believers, but given this relationship, it could account for the Bible-believers effect. The stronger a person's commitment to religion (i.e., the more strongly the person holds core religious beliefs and the more frequently the person engages in religious practices) the more likely the person is to deny scientific facts (such as human evolution and the big bang theory) that conflict with the person's strongly held religious beliefs (cf. Kahan et al. 2012).

Counterarguments: Mooney (2012) proposed a potential explanation for why highly educated Republicans are less likely to believe humans contribute to global warming than are less highly educated Republicans. Translated from that context to the context of Bible believers and human evolution, Mooney's explanation is the following. Compared to less well educated Bible believers, more highly educated Bible believers better understand arguments used to deny human evolution and are, therefore, better able to justify their beliefs in the face of scientific evidence to the contrary. We are all susceptible to confirmation biases and the selective interpretation of evidence. For example, we tend to be less critical of evidence that supports our views and, conversely, more motivated than is justified to identify flaws in evidence that opposes our views (Lord et al. 1979). The cognitive skills needed to perform such self-serving assessments likely improve with education. That is, the more years of education a person has, the more skilled that person is in defending his or her beliefs when they are challenged.

Need for Consistency: Compared to the less well educated, those who are more highly educated may have a greater need for consistency in their beliefs (and a better understanding that belief in the Bible as the word of God is inconsistent with belief in human evolution). If they have a greater need for consistency of beliefs, those who are better educated would be more self-motivated than

those who are less highly educated to reject human evolution and therefore more motivated (and not just better able) to employ self-serving assessments of evidence.

Over Confidence: Perhaps education breeds confidence in a person's opinions regardless of their relationship to fact; if so, the more a person believes he or she knows the answers, the less likely that person is to be persuaded by conflicting evidence.

Implications

According to the GSS data, only slightly more than half of American adults (52 percent) believe in human evolution. Who among the 48 percent of evolution deniers is most open to changing their minds? We might hope those who are highly educated are (a) less committed to false beliefs, (b) more intellectually capable of understanding evidence that conflicts with their beliefs, and (c) more persuaded by rational argument than are those who are less highly educated, and hence more open to changing their beliefs.

But if any of the preceding hypotheses about the cause of the Bible-believers effect is correct, the Bible believers who are most open to changing their beliefs about human evolution are those who are least, rather than most, highly educated. Whether the Bible-believers effect arises because years of education and strength of religious convictions are correlated, because the highly educated are best at making counterarguments, because the highly educated have the greatest need for consistency, or because the highly educated are most overconfident, highly educated Bible believers would be less likely to change their mistaken views about human evolution than less highly educated Bible believers. In other words, if any of the preceding explanations of the Bible-believers effect is correct, highly educated Bible believers not only deny human evolution more but are also more committed to denying human evolution than are less highly educated Bible believers.

An implication is that the argument for human evolution may be a particularly hard sell among highly educated Bible believers. In addition, a debate about human evolution that presents both sides of the argument may be counterproductive among Bible believers regardless of educational level. In particular, a debate that includes the argument that the Bible conflicts with human evolution and that highlights counterarguments to human evolution, might serve more to entrench mistaken beliefs than to weaken them among Bible believers of all educational levels (Lord et al. 1979). That is, a debate that presents both sides of the argument for human evolution could heighten awareness of how core beliefs about the Bible conflict with belief in human evolution and present both counterarguments to and evidence against human evolution, and thereby enhance the motivation and ability to defend one's mistaken beliefs regardless of educational level. This is just one of many reasons skeptics might object to presenting either creationism or intelligent design alongside evolution in the science curriculum of public schools.

Conclusions

Education tends to be positively correlated with knowledge. The greater a person's level of formal education, the greater is his or her knowledge and acceptance of scientific facts, in general. But among Republicans, education is negatively correlated with the belief that humans contribute to global warming. Republicans who are most highly educated are those who most often deny humans' role in global warming, which is contrary to scientific consensus. In addition, education is negatively correlated with belief in human evolution, among those who believe the Bible is the word of God. Of those who believe the Bible is the word of God, the most highly educated are most likely to deny human evolution, which is contrary to scientific consensus. These results suggest that rational, evidence-based arguments in support of scientific facts may be less effective in correcting the false beliefs of the highly educated than in correcting the false beliefs of the less highly educated, when those facts conflict with core conservative values.■

Note

1. The results are from a sample of 4,084 respondents. Subsequent results are also from the General Social Survey.

Acknowledgments

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EVOLUTION: THE BIG AND THE SMALL OF IT

Are macro- and microevolution really two different processes?
Two biophysicists answer this question by exploring the theistic argument against evolution.

EDOUARD HARRIS and JÉRÉMIE HARRIS

It is a common fixture among the religious, particularly those scientists inclined toward faith, that they acknowledge the existence of a phenomenon they call "microevolution" but assert in the same breath their vigorous denial of another process that they refer to as "macroevolution." Religiously inclined biologists appear singularly prone to the commission of this cardinal sin; the fact is that the micro-/macroevolution distinction is one drawn without a difference. The two processes are one and the same.

To understand this claim more completely, let's begin by examining the justifications given by creationists and intelligent designers for the distinction itself. Let us bypass the young-Earth creationists, who merely assert that the universe is too recent for any meaningful evolution to have taken place (see sidebar). We will instead focus attention upon that subset of religious opinion that claims to see a disparity between the so-called "macro" and "micro" forms of evolution.

The crux of the religious case is contained in the very definitions used. It is acknowledged that small, or "micro," changes can take place in a species over generations. Indeed, this could hardly be denied by a member of any species whose young are at all genetically different from their parents. But at the same time, creationists deny the possibility of larger, "macro" changes. Even the suggestion that "macro" changes might simply result from a large number of "micro" changes, accumulating over a long time, is deprecated.

Interestingly, intelligent designers disagree about *where* the line should be drawn between large and small changes, though there is general agreement that a change of sufficient significance to beget a new species should fall on the "macro" side. (Even this is not a very useful rule of thumb, as the definition of a species remains contentious among biologists.)

A "micro" change is characteristically portrayed as quantitative and incremental—a colony of bacteria swim 2 percent faster than its parental generation, for example. On the other hand, "macro" changes are qualitative and almost binary—a fish does or does not have eyes, a bat does or does not use echolocation. It is often argued that a particular appendage, organ, or biochemical reaction appears far too complicated to have spontaneously appeared, fully formed, in a creature. The wing of a bird or bat is commonly cited as an example of this, as is the eye. These structures seem sufficiently intricate that intermediate forms are judged not to be useful or, indeed, usable.

Proponents of intelligent design contend that a half-evolved eye would seem to be useless for seeing, and a half-evolved wing rather worse than useless in conferring flight. Any half-winged creature that attempted to fly would very likely meet an untimely end, resulting in the swift eradication of its traits from the gene pool. This line of argument is used to cast doubt upon the whole evolutionary narrative, and it is the archetypal way in which the seeds of creationism and intelligent design are sown in the minds of listeners.

A great deal of time and ink has been spent in refuting specific instances of this argument. The eye, for example, has seen its evolution explored in pitiless detail by biologists, and a plausible progression has been identified in which intermediate forms of the organ do indeed make profitable contributions to survival and fitness. The wing is believed to have initially risen as an aide to gliding and insect catching; it is still used today in this capacity by flying squirrels and other such animals.

But just as there is a near-infinite variety of elaborate organs and structures in nature, so too is there almost no end to the proliferation of putative complexity arguments that can be conjured up in an attempt to buttress the creationist position. Apart from self-education, then, there is little to be gained in attempting to contest these specific claims one by one.

The Blind Man and His Walking Stick

To better situate the "macro" evolutionary concept, let's consider an analogy. Imagine that a blind man who has a walking stick with which to probe the terrain around him wants to locate a very small hill in the middle of a field. Lacking the means to orient himself and to retrace his steps, he can do little more than wander, perhaps changing directions periodically, in the desperate hope that he might eventually happen to reach his goal at the top of the hill. Since the hill that he is looking for is very small compared to the size of the whole field, his walking stick is of very little help in finding it. The flat ground around him leaves him with no clear indication as to which direction he should choose to begin his search.

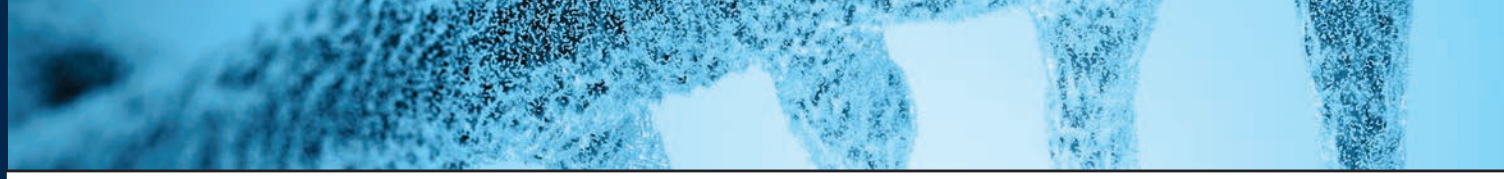
The intelligent design argument, in its most credible form, holds that evolution is exactly this: random genetic mutations that exert their influence on a population (our blind man and his walking stick) in a totally aimless manner (he is blind) with only a very small subset of possible genetic sequences resulting in advantageous adaptations (the small hill that he is trying to find), and the remainder being completely useless (the rest of the field). Just as the blind man aimlessly wanders in the field with no reason to choose one direction over another in his search for the hill, so intelligent design argues, do our genes randomly mutate with each passing generation, with nothing to favor one DNA sequence over another. By adopting this position, proponents of intelligent design in essence argue against evolution by *ignoring* the crucial role played by natural selection in promoting incremental and beneficial changes to existing populations.

Let's return to the wing example. At a fundamental level, we can begin by thinking of all of the possible ar-

YOUNG-EARTH CREATIONISM

The reader may be surprised at the offhand way in which young-Earth creationism is dismissed in our text. The reason is that the idea of a youthful Earth—that is, an Earth on the order of ten thousand years old or less—is handily disposed of by a preponderance of scientific evidence from a wide variety of sources. These include, among many others, the fact that we can see galaxies that are so far away that their light must have taken billions of years to reach our telescopes; innumerable fossils that have been found by radiometric dating to be hundreds of millions of years old; evidence of ice advancing and retreating at high latitudes over the last several hundred thousand years; and even a handful of tree colonies in Utah that are so old that they have, apparently, been continuously living since long before the supposed date of biblical creation (Sibley 2009).

To reject all of these independent lines of evidence is almost to suppose nature an intelligent adversary that has purposefully arranged itself in such a way as to deceive scientists. Amazingly, this adversarial notion is endorsed by many—though by no means all—young-Earth creationists, who essentially assert that the animus behind nature's deception is supplied by the Devil. The reply here, apart from an acknowledgement of Satan's commendable attention to detail, would be that the ruse would encompass so many features fundamental to our world—the speed of light, nuclear decay, the variety and unity of organisms we see around us—that one is then left to wonder how God's contributions to the universe could possibly have equaled the Devil's.



Of course, *individual* organisms cannot and do not evolve; only *populations of individuals* do. As anyone may verify by observation of his fellow humans, populations are comprised of individuals that are far from being identical to one another. Most humans do look largely similar: we can almost always identify another animal as a human being on sight, for example.

rangements of bones, blood vessels, and skin that we could try, blindly, in an attempt to confer flight on an organism. Perhaps the bones could be sticking out of the skin, for instance, or the arteries could be delivering blood to the wrong places. Loosely speaking, each of these arrangements, including that of a fully functional wing, can arise from a particular sequence of DNA. Of course, there are many more ways of building a wing wrong than of building it right. Therefore only a tiny fraction of all the possible arrangements of bone, skin, and vascular tissue that we might try could ever be used as a passable wing by our organism (this small fraction is represented by the tiny hill in our blind walker analogy).

Only through the most improbable luck, then, could a random walk process like the one described above result in "macro"-scale variations in a given population—the evolution of an entire, functioning wing or eye, for example. Naturally enough, the extent of this improbability has been calculated by diligent creationists. The number is suitably imposing: on the assumption that evolution operates in this way, it would require many multiples of the lifetime of the universe for a simple protein to be produced correctly by chance (Coppedge 2014). A structure like a wing, far more complex than a protein, would presumably take unimaginably longer to be drawn from this evolutionary lottery. Given the phenomenal implausibility of all this, the theologian points to divine intent as a more plausible explanation for the existence of the wing and other "macro" features.

This is not an unreasonable argument at first glance. Yet the main error occurs at the very beginning: as it happens, the picture of evolutionary blindness and aimlessness, which has been painted by so many modern religious apologists, is entirely wrong.

Seeing without Looking: The Real Evolutionary Landscape

To understand why, we can once again use our blind walker as a guide. As before, he will represent an evolving population of individuals. This time, however, he is not placed in a flat field with instructions to find a tiny hill. Instead, he is dropped off in the middle of a mountain range and is given instructions to make his way to the highest peak. In this new scenario, the greater the blind man's elevation, the better adapted the population is to its environment. This is far more akin to the way in which evolution actually operates in practice.

An organ such as a wing may admit many different configurations that are useful—the leathery wings of bats, the feathered wings of birds, and the variegated wings of insects are all thought to have evolved independently (Whiting et al. 2003; Norberg 1990)—just as a given mountain range will have several different peaks. Of course, some wing configurations are more useful than others, just as some mountain peaks are taller than others.

Interestingly, the blind man's walking stick, useless in the flat field, now gives him a decisive advantage: he can probe the terrain immediately nearby, while the variable landscape of the mountain range gives him something to probe. But what is the analogue of the walking stick in the context of evolution? What part of the evolutionary process "sees" the different wing configurations and selects the best one among them?

In short, this is the *diversity* of the population. Of course, *individual* organisms cannot and do not evolve; only *populations of individuals* do. As anyone may verify by observation of his fellow humans, populations are comprised of individuals that are far from being identical to one another. Most humans do look largely similar: we can almost always identify another animal as a human being on sight, for example. Yet our evident individual differences mean that our population is in some sense spread out, with individuals differing slightly in many categories including height, foot size, hair color, skin color, and innumerable others. It is precisely this "spread," or diversity in characteristics, that corresponds to the length of the walking stick.

Back to our analogy: when he feels an increasing terrain elevation in a given direction, our blind hiker will opt to move that way, correctly reasoning that this will eventually lead him to a local (evolutionary) peak. Under these conditions, he is much more likely to reach a peak—though

not necessarily the highest peak in the area—long before his friend in the field finds his small hill.

To continue with the example of the wing, suppose that there exists a population of individuals that are all identical, except that some have somewhat better wings than others. In our blind hiker analogy, wing strength is identified with height on the mountain slope, so individuals with good wings are higher up, closer to a peak than are individuals with weaker wings. The differences in wing quality may be initially very slight. Perhaps some individuals simply have more musculature in their wings so that they can fly with greater control and precision, while others are endowed with a more rigid bone structure, allowing them to glide without expending much energy.

Since we are assuming that the population is identical in every respect except wing quality, we can be confident that individuals with more useful wing configurations (higher up on the mountain slope) will tend to out-compete and out-reproduce those with less useful configurations (those lower down on the mountain). Insofar as wing quality is genetically determined, individuals with good wings will tend to have children with good wings, and individuals with bad wings will beget poor fliers as offspring. These hapless unfortunates will be more likely to die off, since they are presumably less able to reach food and escape predation than their more flighty peers.

As the generations progress, individuals with better wings will probably begin to dominate, since they will live longer and have more offspring due to their advantage. A few of these offspring will, by chance, be born with mutations that will confer on them even better wings than their parents (and therefore place them even farther up the mountain). Naturally, many more will probably be born with worse flying abilities and so die off early. Over time, the population of individuals climbs, slowly but inexorably, to the top, as the least able organisms die off, and mutations add to fitness incrementally.

The Macro-Micro Connection

The property of a population that allows it to sample possible wing designs (the property that is the analogue of the walking stick carried by our blind hiker) is its diversity. A population with low diversity contains a more restricted spectrum of possible characteristics, just as a man with a short walking stick can perceive only a very small area around him. A very diverse population, however, contains individuals with a broad range of different characteristics, so a population with high diversity is rather like a hiker with a very long walking stick: he can probe far in all directions around him, and make a better informed choice as to his preferred course.

In the field, there is nothing to give our blind man any way of choosing between taking a step to the left or to the right. The best he can hope for is to search the area systematically until he finds his target, which may indeed take a prohibitive amount of time if the field is very large. In the mountain range, our man has something to help him decide: the local terrain elevation. And while this may occasionally deceive, leading him to a shallow hill rather than to the towering peak that he would prefer, he is almost guaranteed to end up higher up than where he started. In just the same way, evolving populations invariably become better adapted to their environments over time. Our hiker need not carry out a systematic search; he must only follow the terrain upward, until he finds that every direction he turns leads downward, at which point he will correctly conclude that he is at the top of the mountain.

The flaw in the premise of the macro/micro debate is now in evidence: small changes do not take place at random but lead to incremental improvements. The big changes, considered so improbable as to be completely dismissed by the creationist position on the basis of total randomness, are in fact quite plausible when interpreted as the cumulative effect of small changes.

The important element is that the evolutionary landscape is a mountain range rather than a flat field. Even slight variations in terrain elevation are decisive enough to preclude an argument based upon total randomness. ■

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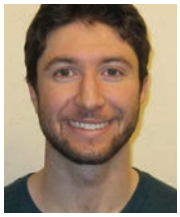

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Alien Lights? At Phoenix, Stephenville, and Elsewhere: A Postmortem

Investigations show that famous nighttime "alien light" sightings were all due to objects in the sky, but not the extraterrestrial spacecraft UFO enthusiasts imagined.

JAMES McGAHA and JOE NICKELL

At around 8:30 on the night of March 13, 1997, residents of the greater Phoenix, Arizona, area, who were outside enjoying the pleasant weather and perhaps hoping to see the comet Hale-Bopp, witnessed something unexpected: a chevron (V-shaped) formation of lights that were "Like nothing they had ever seen before" (Kean 2010, 247). Adding to the mystery was a second set of brilliant lights, in the sky south of Phoenix around 10 on the same night (Davenport 2001; Kean 2010, 25).

Fortunately, there were countless eyewitnesses—and unfortunately, there were countless eyewitnesses! UFOlogist Peter B. Davenport (2001), who heads the National UFO Reporting Center (NUFORC) in Seattle, Washington, sums up the matter, while himself confusing the two different events:

> Witnesses were reporting such markedly different objects and events that night that it was difficult for investigators to understand what was taking place. Some witnesses reported five lights, others seven, or even more. Some reported that the lights were distinctly orange or red, whereas others reported distinctly white or yellow lights. Many reported the lights were moving across the sky at seemingly high speed, whereas others reported they moved at a slow (angular) velocity, or they even hovered for several minutes.

However, although admitting the widely differing descriptions, writer Leslie Kean insists (regarding the first event) that "one overriding characteristic prevailed: the craft was massive; it was a solid object, not merely lights; and it often appeared to be very low in the sky, blocking out the stars behind it." Indeed, many said "it was the size of multiple football fields and up to a mile long" (Kean 2010, 247, 248)—an exceedingly large size, perhaps especially for an extraterrestrial craft.

Here, we investigate these two occurrences that have become known collectively as the "Phoenix lights."

Phoenix Lightshow I

UFO buffs were thrilled by the case, with its numerous eyewitnesses and video evidence (although there were many more witnesses and videos for the second event). Davenport was quoted in a big *USA Today* story (Price 1997) that propelled the case nationally: "The incident over Arizona was the most dramatic I've seen. . . . What we have here is the real thing. *They* are here."

If that seemed premature, not every skeptic knew immediately what to make of the case. Joe Nickell was queried by a morning radio show in Arizona, whose host asked him what the lights were. He replied that he expected they would soon be identified but thought it unlikely to have been extraterrestrials. Why, he asked, would aliens come to Earth, on an apparently secret mission, displaying all those bright lights? Early on, however, James McGaha regarded the Phoenix phenomena as familiar indeed. As we shall see, having been a U.S. Air Force special operations pilot, he knew a lot about aerial chevron formations and about dazzlingly brilliant lights!

As it happens, analysis of the apparently sole amateur video of the formation is instructive. Even with enhancement, nothing can be seen to join the lights. Indeed, their pattern changes over even a few seconds' time: "The lights clearly move in relation to each other, proving that the lights represent five separate objects, rather than a solid body" (Ortega 1998). In other words,

eyewitnesses who interpreted the lights as representing a single massive craft were simply connecting the dots. Reports of stars being blocked out by the perceived craft were probably due to the closer bright lights that outlined a triangular area and made it difficult to see less-bright objects within—an optical principle used for stage magic effects known as "black art" (Hopkins 1898, 64–68).

That evidence is supported by amateur astronomer Mitch Stanley, who observed the lights with his large Dobsonian telescope. Its ten-inch mirror gathers some 1,500 times the amount of light as that of the human eye, and its eyepiece magnifies an image sixty times—putting him, in effect, that many times closer to the lights than viewers on the ground. Stanley could see that the lights were, in a word, "planes." He saw that each light was actually a pair, one each on each plane's squarish wings (Ortega 1998).

Given the chevron formation, the planes seemed most likely to be military, and the squarish wing shape—in contrast to the swept, triangular type—suggested either A-10s or possibly T-37 fighter-trainers. But if that were so, why did the Davis-Monthan Air Force Base in Tucson assert that it had no airplanes flying at that time? And why did the Phoenix airport fail to pick up the aircraft on radar?

The first answer is that when Davis-Monthan later rechecked, they discovered that a squadron from the Maryland Air National Guard had flown in for winter training exercises. According to Lt. Keith Shepherd (1997), the public information officer at Davis-Monthan, a squadron of A-10 fighter-bombers had arrived from the Baltimore-based 175th Fighter Wing.[1] As to being invisible to radar, in this type of flight only the lead airplane would be expected to have an active transponder (whose signals are what the air controllers' radar reads), and it may well have been turned off along with certain other navigation lights. The formation of five aircraft was seen flying *along a standard flight route* from Nellis AFB (Las Vegas) to Davis–Monthan (Tucson) and crossing over Phoenix about 8:30 p.m. In any event the flight leader would not be expected to communicate with air traffic control under visual flight rules, and a formation of planes would not have been regarded as noteworthy in any case (Ortega 1997; 1998).

CBS5AZ.com

A still image taken from home video from the 'Phoenix Lights' event March 13, 1997.

Phoenix Lightshow II

As an exercise—and this is what constituted the second phase of the Phoenix lights mystery (the two often being confused, as we have seen)—the Maryland Squadron performed a practice release of LUU-2A/B ground-illumination flares dangling from parachutes. These burn at 1.8 million candlepower, and at a distance of 150 miles still appear brighter than Venus at its brightest. They last about four minutes.[2] The drop took place over a gunnery range southwest of the city. After the event became a media UFO mystery, James McGaha spoke with Capt. Edward Jones, the flight leader, and confirmed details of the flare-drop scenario. As Jones explained, before the planes left the nine remaining flares were released—not at the usual low altitude but at about 15,000 feet, making them visible to people in Phoenix.

Although videotapes of the event show the lights behaving just like flares, UFO buff Jim Dilettoso says otherwise. Dilettoso claims his spectral analysis demonstrates they are unlike any known light produced by humans. However, in doing so he claims to do what cannot be done: A camcorder's *representation* of a point source of light (focused onto an electronic chip and ultimately converted into an analog signal recorded on videotape) is unsuitable for spectral analysis. "Trying to do spectral analysis on the image produced by a camcorder," observes one critic, "would be like testing a portrait of Abraham Lincoln for his DNA" (Ortega 1998).

The Discovery Channel, which had aired Dilettoso's pseudoscientific claims, later commissioned another scientific test of the flare hypothesis by Leonid Rudin of Cognitech, an image-processing firm in Pasadena. Rudin matched a witness's videotape with a daytime shot from the same location, showing the distant Sierra Estrella mountain range. As a result, the lights were shown to have been above the range and then to go out—after they drifted behind the mountaintops—just like distant flares. His work was confirmed by another independent analyst (Ortega 1998).

Some UFO proponents have conceded that these later lights have been explained. Kean (2010, 250), for ex-

ample, accepts that one evidential video "has been subjected to detailed analysis by at least two qualified professionals, and both determined that the brilliant lights shown hanging in a row over the mountain range and then dropping out of sight, were, in fact flares"—drifting at the same place and time the video was made. However, Kean still clings to the earlier Phoenix event—the Chevron formation—as representing a genuine UFO mystery.

Another lifelong UFO enthusiast, folklorist Thomas E. Bullard (2014, 8), has begun to wonder if UFOlogists are "on a fool's errand," stating unequivocally that "Faith in the Phoenix Lights UFO has little basis in fact."

As an exercise—and this is what constituted the second phase of the Phoenix lights mystery (the two often being confused, as we have seen)—the Maryland Squadron performed a practice release of LUU-2A/B ground-illumination flares dangling from parachutes. These burn at 1.8 million candlepower, and at a distance of 150 miles still appear brighter than Venus at its brightest.

Phoenix Redux

In retrospect, Fife Symington—governor of Arizona, 1991–1997—says that the state had been "on the brink of hysteria" following the 1997 events, which he once lampooned[3] (Kean 2010, 256). He now calls for "the United States government to cease perpetuating the myth that *all* UFOs can be explained away in down-to-earth, conventional terms." Utterly confusing the causes of Phoenix Lights events I and II, Symington (2010) huffs that "flares do not fly in formation."

Almost exactly three years after the original Phoenix Lights flap, during March 2000 military officials decided to avoid a replay of that near-hysteria when they planned another series of nighttime flare-drop training exercises. Called Operation Snowbird, it involved Air Guard craft (jets and helicopters) from New York, Michigan, and California. These exercises were preceded by a tactical media alert, prompting *The Arizona Republic* to announce jokingly, "Look to the sky, conspiracy buffs: See the spheres of light floating eerily in the night sky. It's the return of the fabled 'Phoenix Lights'" (Walker 2000).

As the tenth anniversary of the Phoenix Lights approached, one news source announced "case solved" after "more strange lights appeared in the sky over Phoenix" during the preceding night (February 6, 2007). Accompanied by a photo, the CBN News article stated: "They were definitely flares dropped by a plane. It looks as though the case of the strange lights may finally be solved" ("Arizona" 2007).

Nevertheless, in 2008 came another "Lights over Phoenix" case, but this was only a pale imitation of the original. As reported by *USA Today* ("Lights" 2008), four bright-red lights hovered over the city on the evening of Monday, April 21. Numerous residents, as well as a Phoenix police-helicopter pilot and air traffic controllers, saw the lights—some describing them as red, while others reported them as white. Most agreed they flickered. They were visible for almost fifteen minutes, changing configurations during that time.

It was soon revealed as a hoax. Calling it "just a nocturnal prank," a *USA Today* reporter spoke with the culprit who asked not to be identified. The man explained that he simply obtained four helium-filled balloons, from which he dangled road flares using fishing line. He then lit the first flare and let it ascend, followed—at one-minute intervals—by each of the others. That the lights seemed to move around, the man thought, was because a passing jet had created air turbulence ("Lights" 2008); however, ordinary winds would account for the movement.

Of course, such a confession could be false, but in this instance the man's neighbor, Lino Mailo, actually saw him launch the devices. Mailo said, "I could've put this whole thing to rest." The affair was short-lived, anyway, although residents who saw the mystery lights did recall the original "Phoenix Lights" case of 1997 ("Lights" 2008).

Of course not all such cases were limited to the Phoenix area. One 2007 display of lights "not of this world" (as an eyewitness described the phenomenon) came from Arkansas, where A-10 jets from Fort Chaffee had released the special battleground-illumination flares (Kovacs 2007). Another, much more prominent case, occurred in central Texas.

Stephenville Lights

Stephenville, Texas, is a town about a hundred miles southwest of Dallas. There, on January 8, 2008, between 6:15 and 7:30 in the evening, some forty eyewitnesses reported strange, extremely bright lights—at first moving slowly, then more quickly, some estimating a speed of 3,000 miles per hour (of course without information about distance or plane size, such estimates are worthless). The UFOs were pursued by what seemed to be military aircraft. Recalling the Phoenix Lights of yesteryear, some witnesses described the Stephenville lights as forming a single, mysterious object a mile long. When a public affairs officer for Carswell Field stated that that Naval Air station had no jets operating in the vicinity, flying-saucer theorists were off and running (Frazier 2009).

On July 4, the Mutual UFO Network (MUFON) issued a seventy-six-page report on the Stephenville incident, consisting largely of an analysis of Federal Aviation Administration (FAA) "raw" radar returns, supplemented by eight eyewitness statements. The MUFON report contended that the FAA radar had tracked a giant object 524 feet or more long, traveling near the "Western White House" (the ranch of then-president George W. Bush), fifty miles southeast of Stephenville.

Meanwhile, James McGaha had begun to investigate the Stephenville case. He recognized that the airspace where the lights were observed was identical to Brownwood Military Operating Areas (MOAs) that begin just ten miles southwest of the Texas town. Encompassing 3,200 square miles, these MOAs are areas of restricted airspace where military aviation training is carried out.

As he told the Skeptical Inquirer, McGaha (2009) contacted the FAA, and was informed that, on January 8, four F-16 jets from the 457th Fighter Squadron had in fact entered the MOA at 6:15 and another four at 6:26—the groups departing at 6:54 and 6:58 respectively. McGaha then contacted the public affairs office of the 301st Fighter Wing to ask if they had erred in denying that their aircraft were in the MOA on the evening in question. They subsequently called him back to admit their mistake, and on January 23 issued a public press release that F-16s were actually flying in the Brownwood MOA on the evening of January 8.

McGaha explains that the F-16s had been engaged in training maneuvers, dropping counter-measure flares, used to confuse heat-seeking missiles—a fact confirmed by much additional independent evidence. For example, the pilot of a military helicopter who was flying that night had seen the lights. Himself a retired U.S. Army pilot, he stated, "I saw multiple military aircraft, with some dropping flares, in the area of the Brownwood 1 MOA." In fact, some of the MUFON witnesses had described "very bright lights similar to the intensity of burning magnesium," even stating that they actually saw flares being dropped from aircraft! Moreover, while conducting air-to-air combat exercises, in order to get quick acceleration pilots inject fuel into the engine exhaust (a procedure called "going to afterburner"). This results in a great burst of flame, visible from a distance.

As to the MUFON radar analysis, McGaha (2009) found it to represent "cherry picking" of data. The UFOlogists had selected just 187 points on which their claims were based "out of 2.5 million points of noise and scatter to make a [radar] track moving forty-nine mph for over one hour," adding, "This analysis is absurd!" He concluded:

> The untrained witnesses/observers were seeing nothing more than F-16s and flares. Stephenville is nothing more than connecting "lights in the sky" to form a very large mysterious object, an object that many that night thought was from another world. But nothing otherworldly happened around Stephenville on January 8, 2008.

And that also sums up the many similar cases we have looked at here as well. ■

Notes

1. There were several planes, but not all were flying in one formation, nor did all participate in the second event, described in the next section.

2. These should not be confused with a very different type of flare that is released to thwart heat-seeking missiles, although Shepherd (1997) did confuse the two.

3. Gov. Symington staged a press conference with a costumed "alien," but James McGaha predicted (Erickson 1997) that the "joke" would backfire, that it would spark claims of a government cover-up, which it did.

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James McGaha, major, USAF retired, is a former special operations and electronic warfare pilot and now an astronomer and director of the Grasslands Observatory, Tucson, Arizona. He has frequently appeared as a UFO expert on such television shows as *Larry King Live*. He is a Committee for Skeptical Inquiry Scientific and Technical Consultant.

Joe Nickell, PhD, is a skeptical UFOlogist who has written extensively about alleged extraterrestrial visitations in his various books, including *Entities* and *Tracking the Man-Beasts*. He contributed to *The Encyclopedia of Extraterrestrial Encounters* and coedited *The UFO Invasion*.

Yes, But How Do You Explain *This*?

How can you mount a case for skepticism when confronted with someone's powerful personal experience with the paranormal? By making three simple points: your case is not special, what you see is not all there is, and everything works.

STEPHEN CAREY

As a reader of the Skeptical Inquirer, you have undoubtedly had encounters like the following: Knowing of your skeptical outlook, a friend asks you what you think about the paranormal. You set out the usual rationale—the evidence for most paranormal phenomena is weak, and plausible non-paranormal explanations for most such things are readily available. You might even provide a few examples, such as crop circles and tram-lines, poltergeists and attention-seeking children, UFOs and Venus. Your friend nods his head in agreement. And then he asks, with a slightly smug look, "Yes, but how do you explain *this*?" He then relates a strange incident that happened to him. Maybe it's a psychic link with another mind, an apparition appearing in the middle of the night, or an amazing cure thanks to some unorthodox form of medical treatment.

This sort of encounter poses a hard and frustrating challenge. You weren't there, you didn't experience what happened, and nothing tangible remains to be investigated. So any explanation you might advance is bound to lack credibility in the eyes of your friend, and to suggest little more than a wholesale rejection of the paranormal along with an unwillingness to take his experience seriously.

As a teacher of a college course about science and the paranormal, I've often felt the sting of this particular frustration. I can't count the times a student—newly armed with a set of tools by which to think critically about paranormal claims—will enthusiastically raise his or her hand and ask, "Yes, but how would you explain *this*?" What follows, of course, is a vivid account of something bizarre—something that has happened to the student that strikes him or her as unlike all the other cases we have investigated. Here is where my frustration sets in along with the temptation to respond, "Good God, have you been sleeping all term?" But I think I have discovered a better response, one that can get the student to take a more critical second look at his or her encounter with the paranormal. It is a response, I might add, that doesn't leave the impression their teacher is in the clutches of a biased and uncritical skepticism about all things that don't fit his worldview.

I now reply with something like this. "Your experience is interesting and certainly worth thinking about seriously. Now, we can't know for sure what happened, but we can make some headway in trying to understand what went on if we keep in mind three crucial facts. In fact, if you take away nothing from this course—other than these three facts—you will have gotten your money's worth. First, your case—and my case—is not special. Second, what you see is *not* all there is. And, finally, everything works."

I doubt that much of what I am going to say in what follows will be new to you. But I have found that this way of making the case for a healthy dose of skepticism about the paranormal lends it a kind of staying power. Students really do tend to remember these three facts long after the bulk of the course is but a distant memory. Even better, they are for the most part willing to use them in thinking about their own encounters with the paranormal. My hope is that they will enable you to make some headway in dealing with similar situations. Old wine in new bottles, perhaps—but, I hope, useful new bottles.

1. Your case (and my case) is not special.

We are all very good at demystifying strange things when they happen to others. Consider the following account, sent to a well-known advice columnist:

> Our precious mother passed away in 1983 and left me her mink stole. I didn't think I'd ever wear it, so I gave it to my older sister. This year for Christmas my sister gave me the delightful gift of a teddy bear made from Mom's stole. It arrived in a large box filled with packing peanuts. At the bottom of the box was a very worn penny. The date on it was 1977, the same year our brother passed away after a brief illness.
>
> A few months before his death, he and his high school sweetheart had married after 40 years of marriage to other mates. They were like teenagers, so in love and so happy. Needless to say, his death was devastating. My sister swears she didn't put the penny in the box.
>
> I can usually find a logical explanation for strange phenomena, but this really touched me. My sister and I believe the penny symbolizes a link between Mom and our brother, who are now with Dad—and together they sent us this "article of faith."

I would imagine that by the time you finished reading this passage you had figured out that the "strange phenomena" were no more than a coincidence. You probably asked yourself something like the following: What are the chances that some object with a date on it—like a coin—will be discovered sometime, somewhere, by someone for whom that date has some significance? The answer, of course, is that the odds are not all that slim. For, strange as it seems, improbable things are not all that improbable. People are struck by lightning, win lotteries, and find coins with dates that are significant to them. The problem is that when strange things happen to us—not others—we tend to lose sight of this fact.

To see this, consider another unusual event, only this time one that has happened to you. Imagine you've awoken from a long night's sleep, having had a vivid dream about a friend you haven't seen in years. Later that day you check your email and find a message from her. She says she's been thinking about you lately and so decided to try to get in touch with you. She hopes she has reached the right person. How would you account for this stunning pair of events? It certainly does not look to be coincidental. Out of the hundreds, perhaps thousands of people you know, what are the odds of the person you dreamt about contacting you the next day?

So, how, you might ask, do you explain this? How, indeed? By resisting the temptation to think of your experience as somehow special. The question you need to ask is not about this particular friend and this particular dream. Think instead about the following: what are the chances of a friend—any friend—getting in touch with you shortly after you have dreamt about them? Given the number of people you know and the number of dreams you manage to recall, the odds of something like this happening are not all that small. The trick here is to understand that your experience on that night and the following day is just not all that special. In fact, it is just the sort of thing you should expect to happen every now and then.

Strange as it seems, improbable things are not all that improbable. People are struck by lightning, win lotteries, and find coins with dates that are significant to them. The problem is that when strange things happen to us—not others—we tend to lose sight of this fact.

2. What you see is *not* all there is.

In *Thinking, Fast and Slow*, Daniel Kahneman describes a tendency we all have to form beliefs on the basis of the most recent evidence even when that evidence is minimal. Hence, the notion that *what you see is all there is* is relevant where the formation of belief is concerned. "The confidence that individuals have in their beliefs depends mostly on the quality of the story they can tell about what they can see, even if they can see very little" (Kahneman 2011, 87). Imagine you've had a disturbing experience: on a dark night in your old house you hear a strange sound, like a moaning, see a movement out of the corner of your eye, and feel a soft breeze on the back of your neck, as though someone is breathing on you. Then your cat walks into the room and looks directly behind you as though something has caught its attention. (In fact, this tale comes from a student speaking of something that happened to his mother. Later I learned of rumors that a previous tenant had died in the house.) The power of the obvious story you would spin out here is hard to resist. Something—something otherworldly—is in the room.

"So how," you might ask me, "do you explain this? You weren't there and you just don't have a sense of what the experience was like." How indeed? By keeping two facts clearly in mind: First, your story is built out of limited information about what has transpired. You've focused in on those few impressions on which your story depends. But the grip of the story you have told has put a hold on your critical curiosity—your willingness to look for other facts that may help you understand what happened. What, for example, about the following? Old houses are creaky and breezy. Cats often have their attention captured by things that are not there (or that our less-sensitive eyes cannot see), and we all catch glimpses of god-knows-what out of the corners of our eyes. Remember, what you see is *not* all there is. Second, compare your belief in your own case with what you would say if somebody else reported a similar experience. No doubt, you would write off such a report as nothing more than an entirely expectable response to a few curious happenings, given only the few bits of information

that support the paranormal scenario. Shouldn't you be willing to extend the same sort of thinking to your own case? Remember, your case is not special.

3. Everything works.

This final fact needs a bit of hedging: anything advanced as a medical remedy is probably going to work. Many of the extraordinary experiences people report involve unusual cures. A little energy work focused on my forehead and my headache vanishes. Six ounces of unadulterated pickle juice two times a day for three days and my cold is gone. What often goes unnoticed in such cases is the simple fact that most ailments are self-limiting. They will, in many cases, eventually go away if left untreated. So if I am ill and do nothing about it there is a good chance I will get better. This is the good news. The bad news is that if I am ill and do anything—anything at all—I am likely to get better. The potential for *post hoc, ergo propter hoc* inference here is staggering.

Your friend tells you of his chronic lower back problem. The muscle relaxers and physical therapy prescribed by his physician provided little relief. Finally, he tells you, he decided to try something different—acupuncture. After several visits to a licensed acupuncturist, the pain began to subside. After a few more treatments the pain declined to an entirely manageable level.

So how, he asks, do you explain this? How indeed? There is every chance, you might point out, that continued therapy and medication would have done the job as would having doing nothing at all. Are all three methods of treatment equally effective? The honest answer is that, based on your friend's experience, we just cannot say. What we need is the kind of comparative evidence that can be provided only by controlled experimentation. Do people who receive acupuncture for lower back pain improve more than those who receive standard medical treatment, or who do nothing at all, or who believe they are receiving acupuncture when they are not? (The recent invention of sham acupuncture needles now allows for an effective way of testing for the placebo effect.) Still, your friend is not impressed. "I don't need a study to tell me that acupuncture works. It worked for me," he insists. "No," you need to reply. "The one thing you *do* need is a study—a controlled study. Otherwise you have no reason to think it was the acupuncture that helped you. Remember, just about anything held out as having medically curative properties is going to appear to work. So you really do need the sort of evidence a controlled study can provide, unless of course, you think your case is special."

The key to getting people to think critically about their own paranormal experiences is to convince them to acknowledge a kind of epistemic golden rule: treat your own case as you would treat the case of anybody else. Are you willing to consider information beyond that on which your account of what has happened is based? Are you, that is, willing to consider information you would want to have at your disposal if the experience were reported by somebody else? Faced with a realization that they are not applying a common set of evaluative standards to both themselves and others, they may just be willing to step back and take a more objective look at their own paranormal experiences. ■

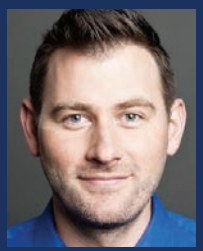
Reference

Khaneman, Daniel. 2011. *Thinking, Fast and Slow.* New York: Farrar, Straus, and Giroux.

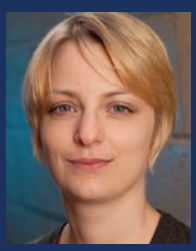
Stephen Carey, PhD, is professor emeritus of philosophy at Portland Community College in Portland, Oregon. He is the author of *A Beginner's Guide to Scientific Method* and *The Uses and Abuses of Reason: Critical Thinking and Fallacious Reasoning.*

POINT OF INQUIRY
WITH JOSH ZEPPS & LINDSAY BEYERSTEIN

For in-depth interviews with the most fascinating minds in science, religion, and politics, join *Point of Inquiry* cohosts Lindsay Beyerstein and Josh Zepps at pointofinquiry.org.



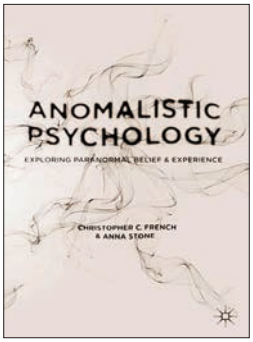
Josh Zepps (cohost) is a new media pioneer; a journalist serving as a founding host and producer at the online talk network HuffPost Live, following hosting stints with such outlets as Bloomberg TV, the Discovery Channel, and as an anchor for CBS's Peabody Award-winning *Channel One News*.



Lindsay Beyerstein (cohost) is an award-winning investigative journalist and staff writer for *In These Times*. Her work has appeared in places such as *The New Republic, Reuters, Slate, Salon, Ms. Magazine*, and *The New York Press*. Wait to see what stories she tells with her guests on *Point of Inquiry*.

Skeptical Psychology between Two Covers

BENJAMIN RADFORD



***Anomalistic Psychology: Exploring Paranormal Beliefs & Experience*. By Christopher C. French and Anna Stone.** Palgrave MacMillan, 2014. ISBN: 978-1403995711. 346 pp. Paperback, $36.05.

Chris French (head of the Anomalistic Psychology Research Unit at Goldsmiths, University of London) teamed up with Anna Stone (senior lecturer at the University of East London) to write a book on anomalistic psychology and paranormal beliefs. With the pedigree of these two authors, it had better be good. Fortunately, it's very good.

The book is divided into twelve chapters, each offering a different perspective (including social, evolutionary, cognitive, and psychobiological). While there are more in-depth books about various aspects of the subject (including, for example, Thomas Gilovich's *How We Know What Isn't So*, referenced several times), *Anomalistic Psychology* is probably the best single-volume introduction to the subject of the psychology of paranormal belief available. The book is clearly intended for use in an academic setting as a textbook or resource; the occasional boxed sections of discussion-prompting "Ideas to think about," for example, are evidence of that.

As a veteran skeptic with a degree in psychology, I began the book assuming that I would be familiar with much of it: cognitive biases, misperceptions, and other stock psychological phenomena that routinely crop up during investigations and evaluations of eyewitness accounts of the paranormal (chapter six, on Cognitive Perspectives, may be the most familiar to the average psychologist/skeptic, with its discussion of common cognitive errors such as hindsight bias, confirmation bias, illusory causation, misunderstanding probability, and so on).

And indeed while there were few wholly new subjects, the depth of discussion was impressive. On page after page I revisited old subjects from new angles, or with recent research and insights that I'd missed. I learned a lot from the book, as will any skeptic interested in the topic of how and why people come to believe that they have experienced something unexplainable.

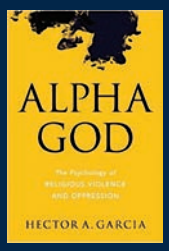
The authors do an impressive job of surveying the literature on a wide variety of skepticism-related subjects. Several sections stand out as particularly useful, including the discussion about the role of magical thinking in childhood beliefs about the paranormal. They note, for example, that "It appears that there is a peak age for believing in magic, which is around five to six years old, and that belief declines thereafter" (71). They also examine the roles of parents and peers in the development and sustaining of magical beliefs. The discussion about the neurological origins of near-death and out-of-body experiences (105–112) offers a concise and up-to-date summary of literature on these topics. I was pleased to find a short discussion about media influences on popular beliefs, which is a subject that does not always get its due in the skeptical community. Television shows such as *Ghost Hunters* can be influential, though the effects are complex and indirect.

There is very little to complain about this book; its biggest drawback is probably that it's not written for a popular audience. It's not difficult reading—the authors avoid jargon and offer a fairly thorough glossary for terms that may be unfamiliar to non-skeptics—but the very scholarliness that makes it suitable for academia may put off the casual reader who might pick it up in a bookstore and return it, thinking it's over his or her head. Of course the authors can hardly be faulted for that, since that's not its purpose. Perhaps one day French and Stone will issue a more accessible version (along with interesting photos and illustrations, which are absent in this volume) that reaches the mass market where their information is sorely needed. Until then, *Anomalistic Psychology* is among the best there is. ■

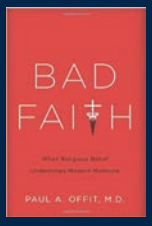
Benjamin Radford is the deputy editor of the Skeptical Inquirer and a research fellow with the Committee for Skeptical Inquiry.

[NEW AND NOTABLE

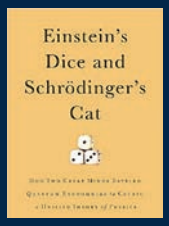
Listing does not preclude future review.



ALPHA GOD: The Psychology of Religious Violence and Oppression. Hector A. Garcia. A professor of psychiatry and clinical psychologist uses evolutionary psychology to explore the origins of religious violence and oppression. God is the dominant male in Judaism, Christianity, and Islam, and Garcia sees the traditional God concept as a reflection of the "dominant ape" paradigm evidenced in the hierarchical and social structures of primates. In male-dominated primate societies the alpha male protects the group; uses sexual dominance and violence to attain food, females, and territory; and shows in-group altruism and out-group hostility. We humans are the genetic inheritors of such traits. Prometheus Books, 2015, 320 pp., $19.00.



BAD FAITH: When Religious Belief Undermines Modern Medicine. Paul A. Offit, MD. The distinguished physician Paul Offit, whose most recent previous books critiqued alternative medicine and anti-vaccination movements, here focuses his well-informed attention on the uneasy relation between religion and medicine in America, specifically the large faction of religious fundamentalists who eschew modern medicine for the supposed healing power of their faiths. "Every year tens of thousands of Americans refuse medical care for their children in the name of God," he writes, and he chronicles many notorious cases. Nevertheless, he remains sympathetic toward religion while lamenting how organized religions can become "destructive cults." Basic Books, 2015, 288 pp., $27.99.



EINSTEIN'S DICE AND SCHRÖDINGER'S CAT: How Two Great Minds Battled Quantum Randomness to Create a Unified Theory of Physics. Paul Halpern. Quantum mechanics made both Einstein and Schrödinger uneasy. Here a physicist and science author tells the story of how Einstein and Schrödinger searched, first as collaborators and then as competitors, for a Grand Unified Theory that would eliminate quantum weirdness and make the universe sensible again. Their quest ultimately failed, but the story provides new insights into the history of physics and the lives and work of two scientists whose obsessions drove its progress. Basic Books, 2015, 336 pp., $27.99.

Conspiracy Theories throughout American History

PETER HUSTON

The United States of Paranoia: A Conspiracy Theory. **By Jesse Walker.** New York: Harper Collins, 2013. ISBN: 978-0062135551. 448 pp. Hardcover, $25.99; paperback, $15.99.

The United States, like most nations, has a long history of paranoia that permeates its culture and politics. In Jesse Walker's entertaining and informative book, *The United States of Paranoia: A Conspiracy Theory*, he surveys and discusses this paranoia in an even-handed and entertaining way.

The book begins by describing how on January 30, 1835, a madman attempted to assassinate President Andrew Jackson with a pair of single-shot pistols. The assassination failed when both pistols misfired and the president, a war hero and duelist, beat him severely with a walking stick. The would-be assassin was reported to be mentally ill and motivated by a complex cluster of irrational beliefs, including that the assassin thought himself to be King Richard the Third of England, that Jackson had murdered the assassin's father (untrue), and that the public would have nearly unlimited wealth with the president dead. This is strange enough.

However, what Walker focuses on is the beliefs that arose among the media and the general public surrounding the event. These beliefs, perhaps, were equally strange, particularly as they were coming from citizens who presumably did not suffer from mental illness.

Some argued the attempt had been orchestrated by Jackson's enemies in Congress. These enemies responded that, no, in fact, the attack had been orchestrated by Jackson himself to gain sympathy and make them look bad. And twenty-nine years later, a writer argued that the assassination attempt was organized by "slave power," essentially the political lobby of slave owners who disliked Jackson.

And so it goes. Events occur, explanations and hypotheses unfold, and often these show a bizarre paranoid style. Walker surveys such beliefs, past and present, in America and divides them into categories. There's the enemy *outside*, the enemy *above*, the enemy *inside*, and the enemy *below*. Outside were the Native American Indians and hordes of evil foreigners, all of questionable morals and strange, perhaps demonic, religious practices. Above, were the Illuminati and other secretive organizations, both real and imagined, as well as the government or sections of the government, some of which may have actually been controlled by secretive organizations or groups behind the scenes.

Below were disgruntled slaves and the lower classes, again conspiring to undermine society and the American way of life. Inside society, or even next door to one's house, were witches, Satan worshippers, members of strange religious sects (Shakers and Mormons are named as examples), secret Communists ("the Red Scare"), hidden homosexuals (according to Walker, soon after World War II, the U.S. congress did investigate and hold a series of rather clueless hearings on the security threat homosexuals—the so-called "Lavender Scare"—might pose to America), as well as others who might pose a hidden threat to people's safety and the stability of society.

In the first section Walker surveys these ideas in an entertaining and informative manner using proper accreditation and footnotes. Although I found this section at times frustratingly superficial, other reviewers have felt it was too long and detailed. Therefore, it's probably just right for the average reader. In any case, those who wish for more depth can easily use this work as a jumping off point for more research.

In the second section of this two-part work, Walker brings these ideas into the post-World War II era, through McCarthyism, the sixties, and the Watergate era and then brings them up through the age of Rambo (who rescued hidden POW-MIAs that our government denied existed) and into *The X-Files* television show, past September 11, 2001, and on to contemporary times. This section, too, will interest skeptics and anyone else seeking to understand American society. For years, Walker has been a monitor and connoisseur of fringe literature, and he knows of what he speaks.

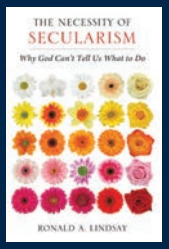
Walker's survey history is balanced and does not seem to favor one political group or view over another. For instance, he makes it quite clear that there is a pattern in American history of one political faction putting in place institutions, laws, and procedures to monitor or control a perceived threat, but then after losing power the faction objects when those institutions, laws, and procedures are targeted against them. Walker also makes it clear that when many government institutes feel themselves under threat from secretive forces, they tend to respond by becoming secretive themselves, tightening their security, and hiding things from journalists, the public, and the outside world. Of course, this only increases conspiracy thinking. Such mirroring—one organization taking on the trappings of another organization, real or imagined, that it fears—is another recurring theme in Walker's work.

In an earlier section, for instance, Walker draws parallels between the trappings and ritual and hierarchical structure of the Roman Catholic Church, favored by many immigrants of the early twentieth century, and the Ku Klux Klan of the time which was often motivated to assemble out of fear of this church and these immigrants. And so it goes.

The paperback edition includes seven extra pages that cover Edward Snowden and Wikileaks and also elaborate, clarify, and update the themes of the work. I recommend this book highly to anyone interested in conspiracy theories, American government, United States history, or even current events. In other words, almost everyone would benefit from reading this book. ■

Peter Huston is an author, journalist, and teacher of English as a second language in the northeastern United States but with much overseas experience teaching in Asia. An avid historian, he holds a master's degree in East Asian Studies with a focus on the history of western science in China. He's written two books on skepticism and a self-published novel involving conspiracy theories.

IN THE LIGHT OF SCIENCE: Our Ancient Quest for Knowledge and the Measure of Modern Physics. Demetris Nicolaides. In this innovative look at the history of science and at science itself, an award-winning professor of physics examines the epochal shift in thinking that led pre-Socratic philosophers of the sixth and fifth centuries BCE to abandon the prevailing mythologies of the age and for the first time to analyze the natural world in terms of rationally understood principles. Greece was this birthplace, he argues, because of the power of the Greek language and a cultural proclivity for critical thinking. He traces these intellectual trends through science today. Prometheus Books, 2014, 266 pp., $19.00.



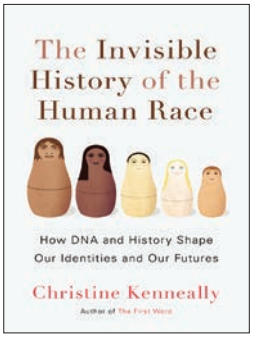
THE NECESSITY OF SECULARISM: Why God Can't Tell Us What To Do. Ronald A. Lindsay. A philosopher's thoughtful and effective defense of secularism in public life. Distinct from "atheism" (a belief), he considers secularism (a "political/ethical philosophy") as the view that government should not involve itself with religious matters, religious doctrine should play no role in shaping public policy or in discourse about public policy, and religious institutions and beliefs should not enjoy a privileged position within society. "In a religiously pluralistic society," he writes, "secularism is the only reliable means of preserving public order and freedom for all." Lindsay is president and CEO of the Center for Inquiry, which includes the Committee for Skeptical Inquiry and the Council for Secular Humanism. Pitchstone Press, 2014, 223 pp., $16.95.

PRACTICALLY SPEAKING. J. Dan Rothwell. A relatively short public speaking text loaded with practical advice. Chapter 9, in particular, is especially welcome and relevant for skeptics. Titled "Skepticism: Becoming Critical Speakers and Listeners," its forthright intention is to explain and promote the process of skepticism. It includes sections on Skepticism, True Belief, and Cynicism; Dangers of True Belief; The Process of True Believing; and The Process of Skepticism: Inquiring Minds Want to Know. Oxford University Press, 2014, 352 pp., $49.95.

—Kendrick Frazier

When Genealogy Gets Distorted

KRISTIN E. HARLEY



***The Invisible History of the Human Race: How DNA and History Shape Our Identities and Our Futures*. By Christine Kenneally.** Viking (Penguin Group), New York, 2014. ISBN 9780698176294. 368 pp. Hardcover, $18.98; U.S. Kindle Edition, $11.99.

Australian-American journalist and linguist Christine Kenneally's second book is a cutting-edge blend of molecular and population genetics, social science, and artefactual records. While not a book specifically about pseudoscience, Kenneally's comprehensive research demonstrates that, alas, wherever science is, ignorance makes inroads. *The Invisible History of the Human Race* details how genealogy was distorted and misapplied to obscure facts and to oppress people. Genealogy as a pseudoscience is most obvious in the "racial science" of the Third Reich, which required all good Germans to demonstrate no Jewish inbreeding from the year 1800 on. Inspired by eugenicist Madison Grant (and not by Charles Darwin), Hitler exterminated the "unfit." For those not condemned, the Lebensborn and the coldly bureaucratic Reich's Genealogical Authority produced anxiety, misery, and shame that lasted for decades and caused some Germans to shun any research into family history as a slippery slope. Today, conspiracy "truthers" engage in a similar fishing expedition to demonstrate the supposed "unfitness" of Barack Obama as president.

However, the effects of suppressing genealogical information also had debilitating effects on the psychologies of orphans in "boys' depots" and on families in Mao's China, who in both cases were denied access to their heritage. However much the authorities declared ancestral records as unimportant, it turned out to be a primal urge to seek out siblings, parents, and grandparents.

The various slave trades that convulsed Africa likewise disrupted whole genealogical legacies. The communities that participated in it correlate today with the most impoverished areas of that continent. In Benin, where children of nine or ten regularly say, "He can sell you" or "He can make you disappear" to warn against someone, distrust of local authorities—and even of extended family members—is so ubiquitous that distrust was essentially "passed down" in families, according to Kenneally. It sounds Lamarckist, but it is no coincidence that in these suspicious, dysfunctional cultures, ancestors had, at the height of slavery, deliberately sold their neighbors or even *relatives* into bondage.

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Denialism there was also—what Kenneally calls "silence passed down." During the transport of convicts from Britain to Australia, the British aristocracy believed that criminal behavior was inherited through "defective families." As a result, fearing the *convict stain* and wanting respectable lives in a land declared a "den of thieves," the Tasmanians willingly whitewashed their family stories and invented outrageous tales of their "proper" origins instead. "Everyone had a vested interest in forgetting," Kenneally quotes a local historian. Later, when having a colorful background became more socially acceptable, respectable Tasmanians who had built successful lives were shocked to discover that they were, of course, the descendants of exiles to a penal colony.

Kenneally reminds us that a young Charles Darwin visited the port of Sydney on the *Beagle* and declared Australia a rehabilitative success. Though she does not draw this parallel, isn't this Tasmanian "silence passed down" about their convict ancestors analogous to the human family's ignorance of its own genealogy, via evolution, before the publication of *Origin of Species*?

And isn't the invention of "respectable" Tasmanian ancestors rather like our creationist Adam and Eve? An odd parallel there is, too, in Darwin calling the discovery of natural selection "like confessing a murder."

Indifference toward genealogy was a feature of the early United States, in which Ralph Waldo Emerson demanded, "Why should we grope among the dry bones of the past?" Yet today, genealogy is hugely popular in the U.S., in part due to new appreciation for smaller, common histories of ordinary people. Beliefs change ideas about what constitutes legitimate research.

More surprisingly, genealogy has been completely dismissed by some scientists as invalid, seen as narcissistic "me-search" or mere heraldry. As in her first book *The First Word*, where she confronted the reluctance of many scientists to investigate the evolution of language, Kenneally points out that the *beliefs* of scientists about what actually constitutes science have unfortunately closed off whole avenues of evidence until now. She successfully demonstrates that genealogy, when triangulated with DNA analysis and with historical artifacts, can yield valuable insights into patterns of human behavior: invasions, isolation, even miner's strikes. "Researchers," she writes, "did not examine the economic consequences of elements like trust and hate because of a *belief* that these things didn't matter beyond . . . individuals."

Beliefs also influence the accuracy of research. The Mormon Church, which cherishes family history and strives to reproduce it faithfully, is microfilming, transcribing, and digitizing whole census records. These are stored in a climate-controlled facility at the Granite Mountain Record Vault according to archival best practices, with copies in branch offices around the world. The Church provides these records to any family historian in order to do "good for the world." Though this pleases me, an archivist, I am repulsed by the project's ultimate aim: posthumous baptism of the dead into the Church of Latter-Day Saints. (Supposedly Mormons "offer" baptism to dead relatives only as a "choice," but such invitations have included Anne Frank and Simon Wiesenthal, offending Jews and stoking religious conflict.)

Belief even influences how genetics is seen, for an error in DNA interpretation mistakenly identified Thomas Robinson, briefly a media darling until debunked, as a descendant of Genghis Khan. Scientific data, like historical data, need appropriate context for true understanding. And yet, we can trace family surnames or resemblance among human faces alongside genetic legacies, or see how sexist ideas about women or a tendency toward big families are "passed down" more strongly in families than in cultures. To quote Kenneally, the intersection of biology and history is "complicated and recursive."

In this must-read book, I was frequently reminded of *The Extended Phenotype*, Richard Dawkins's definitive work, though Kenneally takes us much closer to understanding how evolution intersects with *human* behavior, and with culture, which for too long has been viewed as separate from the natural sciences and from animal behavior—an irrational idea perpetuated even by some scientists. Christine Kenneally has emerged as an innovative thinker, producing again an astonishing and necessary interdisciplinary work. ■

Kristin E. Harley is a certified archivist, librarian, and indexer. She wrote "Information Literacy and Conspiracy Theories" in our January/February 2012 issue.

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Skeptical Inquirer

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Here's just a sample of what you'll find:

The Kaspar Hauser Mystery

Canadian psychologist Romeo Vitelli offers his take on the enigma of the mysterious boy Kaspar Hauser.

The Yukon's Bigfoot Bears

Joe Nickell examines persistence of Bigfoot beliefs, noting that Bigfoot buffs are active almost everywhere, including the sparsely populated Yukon.

For more online columns, features, and special content, visit **www.csicop.org.**

Rebutting 44 Doctor-Bashing Arguments

Thank you, thank you, thank you for this article by Dr. Harriet Hall in the latest issue of Skeptical Inquirer ("Defending Science-Based Medicine: 44 Doctor-Bashing Arguments . . . and Their Rebuttals," November/December 2014). That one concise article is a priceless resource.

For background, I am a retired food scientist who spent the last twenty or so years of my career in the Nutrition group of a major food company. One of my assignments was to provide replies to consumer inquiries that needed science-based answers. I had a great mentor for this task, who familiarized me with many common myths and misconceptions regarding food, nutrition, and health. I learned firsthand that there were many popular "nutritionists" and "healers" whose ideas were not based on objective science.

After I retired, I continued to encounter many people who rejected mainstream food products, nutritional concepts, and medicine. Unfortunately, a lot of them were "true believers" who were convinced that only "natural" foods were good and only alternative healers could be trusted. Your article covered essentially all of the misconceptions I continue to contend with, and I plan to keep it close at hand for continual, handy reference. Of course I will probably never convince the "true believers," but with the facts you so skillfully compiled, I will be better able to provide rational counterarguments that some may actually respect even if they don't agree.

Phillip R. Wells, PhD
Food Scientist (retired)
South Hadley, Massachusetts

I hear my patients bash doctors all the time. But when I ask, "Tell me more," I learn more.

I hear that the doctor spends little time with them. Nowadays, most doctors don't work for patients. They work for clinics or hospitals who in turn work for insurance companies. Doctors are told by the corporation that employs them to spend less time with patients. Doctors are judged by "productivity," which means how much they bill and how many people they see, not whether they did a good job or listened to anybody.

When patients complain about doctors, more often than not they've had an experience of being treated like a number or a consumer, not a patient. Realizing this lets me enter into a productive conversation with the "doctor-bashers" that I doubt Dr. Hall has ever had.

If a physician has a skeptical attitude and an inquiring mind, patients report quite reasonable accounts of how being treated like a data point instead of a human being, which gets them angry enough not to temper their rage with logic.

Dr. Hall pokes fun at people who can't spell, but this kind of bashing might better be directed at the school system, not its victims. She bashes doctor-bashing, calling it a sport, but is this doctor-basher-bashing much different from the doctor-bashing to which she objects?

John Jacobs, MD
Manchester, New Hampshire

The "Doctor Bashing" article makes a fake argument. The "us vs. them" where alternative medicine is represented to be a substitute for medical care: How many auto accident victims refuse to get in the ambulance so they can call their acupuncturist or aromatherapist to the scene? American medical skills and knowledge are what we depend on to take care of us and our children, right? (Forty-one countries have longer life expectancies than the U.S.A.; infant mortality rate is higher in the U.S. than in fifty-four other countries—source: CIA.) ("Re: 1999 Institute of Medicine report on medical errors: If these inferences are correct, the health care system is a public health menace of epidemic proportions."—source: *Journal of the American Medical Association* 2001.) (In 2010, the Office of Inspector General for Health and Human Services said that bad hospital care contributed to the annual deaths of 180,000 patients in Medicare alone. *Journal of Patient Safety* study: "Between 210,000 and 440,000 patients each year who go to the hospital suffer some type of preventable harm that contributes to their death." source: *Scientific American* 9/20/13.)

In numbers 8 and 44, Hall states that placebos are "unethical and lying," yet she herself proposes a placebo study in number 19. So which is it? Harvard Medical School has the Program in Placebo Studies & Therapeutic Encounter. Is Harvard Medical School "unethical and lying"? For an article on "doctor bashing" most of the names that are bashed in the article are in fact MDs themselves!

Thomas Amory
Las Vegas, Nevada

Harriet Hall appropriately indicates that "harms must be weighed against benefits" in medical decision-making. If she had adhered to this concept in her article, perhaps she wouldn't have resorted to the practice of "gratuitously insulting individuals" that she finds so objectionable.

Accusing Andrew Weil of "stoned thinking" may be provocative, but it discredits his immeasurable contributions to medical education and human health, as well as the breadth of his knowledge and experience. As a psychologist who was privileged to work in medical settings for most of my thirty-five-year career, I often collaborated with physicians in an effort to help patients for whom modern medicine has, at best, only partial answers (e.g., chronic pain, ambiguous diagnoses, iatrogenic complications, and/or multilayered psychosocial issues). The integrative medicine approach pioneered by Dr. Weil and others offers hope to individuals who otherwise have little, and it incorporates credible self-management tools that contribute to a sense of self-efficacy and improved well-being.

Scientific mind-body medicine represents far more than nonspecific/placebo effects; this is well understood by those who are open to constructive multidisciplinary input. My own field has contributed significantly to our understanding of personality and interpersonal factors impacting beliefs, behavior, and health. Surely we can open the door to reasonably well-researched interventions without fearing the ultimate endorsement of everything from crystal worship to past lives regression therapy.

Ron Doyen, PhD
Spokane, Washington

Harriet Hall responds:

I agree with Jacobs that patients often have good reasons to complain about their doctors. But my article was not about legiti-

mate criticisms; it was about the flawed arguments used by critics who don't understand the value of science-based medicine. I did not intend to be mean to people who can't spell but merely to make an observation about the typical writing style of the people who use those flawed arguments. I'd love to see the school system do a better job of teaching spelling, science, and critical thinking.

I have no objections to people trying alternative medicine for minor illnesses or as an adjunct to conventional medicine, as long as they have not been misled by unwarranted claims of efficacy. But Amory is wrong: it most certainly is "us vs. them" when it comes to rejecting effective mainstream cancer treatments and population-protecting vaccines. The What's the Harm website has plenty of examples of people who died because they relied on alternative treatments. I wonder how carefully he read my article, since he uses fallacious argument #13, "conventional medicine kills patients." He also failed to understand #8 and #44: placebos are unethical for doctors to use in treating patients because it means they have to lie to patients and fool them into thinking they are getting an effective treatment. Placebos are not unethical in clinical trials where subjects give informed consent and are aware they may be assigned to the placebo group. Placebo studies are essential to medical science and are monitored by Institutional Review Boards to make sure they are ethical.

Doyen has a much higher regard for Andrew Weil than I do. I didn't "accuse" him of stoned thinking; he bragged about it. He has been known to reject clear scientific evidence in favor of his personal intuitions. In my opinion, "integrative medicine" is not a legitimate scientific discipline but a marketing ploy that works to lower the standards of science in medicine and that has allowed quackery to infiltrate our hospitals and medical schools. It has tried to usurp credit for what the best clinical medicine has always done: offering hope, comfort measures, self-management tools, consideration of psychosocial issues, and genuine caring for the individual patient. There is no need for a new discipline of "integrative medicine;" there is only a need to improve the practice of "medicine."

Doyen argues for scientific mind-body medicine. "Mind" is a word used to describe functions of the brain that are more properly studied within traditional scientific disciplines like psychiatry, neurology, and psychology. I think the very term mind-body implies a dualistic fallacy and leads to sloppy thinking and less-than-rigorous research. The door is always open to reasonably well-researched interventions, but most of what is referred to as "mind-body" medicine does not qualify.

No Apocalypse, Then What?

I wonder how many of those who professed to believe that the world would end on 12/21/12 really did ("Remembrance of Apocalypse Past," November/December 2014)?

If there was a good scientific reason to believe that human life on Earth was about to be extinguished, it seems unlikely that human beings would simply carry on with life as normal. I suspect that most of us would choose to see as much of the people we love as we could and make peace with anyone we'd wronged.

Did any of the millions worldwide who said that they thought the world would end on December 21, 2012, behave in this way?

It would seem that there are varying levels of belief at work here: a deep one, expressed by very few people in actions consistent with the stated belief, and a shallower one, that doesn't give rise to action. In this case, some degree of acknowledgement of reality seems to override the stated belief, allowing the individuals concerned to have their beliefs and yet behave as if life will go on as usual.

Perhaps it is advisable to qualify statements about what people "believe" in circumstances such as this, when at some level, most of them clearly don't believe what they say they do.

John Gee
Singapore
Republic of Singapore

I was surprised to find Y2K classed with apocalypse fears like the Mayan Calendrical cycle ending and described as "all the computers were going to stop working for no adequately explored reason." How hard is it to understand that all computer systems that do calculations based on dates and the number of days between two dates are going to have problems if their dates have only two digits for the year when we go from the 1900s to the 2000s? Maybe it's a leap to go from that to "All the computers will crash and civilization will end!" but no business wanted to have its numbers wrong. They took "the Y2K problem" very seriously.

Most companies did not even know what the effect might be as any program could have some kind of date dependency and most files would contain data with dates. Huge projects to determine and avoid date problems sprang up and, inside the data processing field, widely expected to fail. The only question was how badly. Besides the modern rule for leap year is not just every year divisible by four; there are two exceptions: years divisible by 100—exact centuries—are *not* leap years, and all centuries divisible by four *are* leap years. So 2000 would be the first time that the complete modern rule would be applied!

It was a surprise (at least in the computer field) that there were few to no problems as the year 2000 started and proceeded. It was a hopeful measure of how well companies could work when there was a real problem that they all recognized and thought was important worldwide.

Suford Lewis
(retired software system developer)
Natick, Massachusetts

Matthew J. Sharps responds to Suford Lewis:

The authors agree that the basis of the Y2K computer issue is relatively easy to understand and that the problems that might have been caused by this issue were potentially serious. However, we would point out that the word serious may have different connotations for different people. Potential difficulties with schedules and records can be serious. Temporary power outages can be serious. Relatively brief disruptions of corporate profits and operations, as a result of the time and expense involved in Y2K corrections, may have been serious. However, a lot of people, at the time, were preparing for the end of the civilized world. One does not buy large numbers of guns, massive amounts of ammunition, or long-term supplies of canned goods to cope with an erroneous date on a check, with a failed electric light, or even with a brief dip in stock values; but a lot of people prepared for the Coming of the Great Malfunction in exactly these ways. "Serious," for these people, in this context, did not mean "inconvenient" or "expensive"; it meant "We're all going to die like rats." Like the basis of the Y2K issue, the distinction between the levels of affect involved in these divergent perspectives appears relatively easy to understand.

In the interpretation of the potential consequences of Y2K, a specific technical issue was interpreted by large numbers of people in effectively mythological terms, just as the technical issues raised by the Mayan Calendar were interpreted: as portents of a poorly understood End. It should be noted, as discussed in the article, that a conflation of these issues, ancient and modern, was in fact observed; many people reported beliefs in "computer simulations" of the Mayan apocalypse, despite the fact

that no such simulations existed at all. It would appear that human psychology is capable of apocalyptic mental constructions in a variety of venues; computer technology does not, at this point, appear to be an exception.

Global Warming Factoids

The paradox in the "Nothing New Here" factoid ("Some Popular Global Warming Factoids," November/December 2014) is that those who subscribe to it are willing to accept the science that has revealed climate change over the eons but not the science that reveals climate change over the past century or so. The science that reveals ancient climates and (as one example) carbon isotope ratios is the same science used today to show that the recent increase in carbon dioxide and therefore temperature is due to fossil fuel burning. This appears to be cherry picking of the science that supports a belief they already hold, while disregarding science that interferes with that belief. Perhaps one would expect the reverse of a lay person—to be extremely skeptical that ancient climates could be accurately determined but to be more confident that current climate changes could be known, but it appears not!

Phil Wilson
Lake Forest, California

I'm by no means a global warming denier. I believe evidence for AGW and sea level rise over the past 200 years is incontrovertible. That said, I found the article one sided in that it mentions only in passing that "environmentalists with strong opinions on the topic can and do fall into the factoid trap."

It could have been more even handed if the author had listed and refuted some of the factoids, routinely used by the "warming crisis zealots" camp.

Examples:

- Every weather event—tornadoes, hurricanes, droughts, even blizzards—is used as "evidence" for AGW. In fact the number of tornadoes, hurricanes, and droughts has actually decreased over the past thirty years.
- All effects of warming are bad. Yet history shows that in warmer times, the world has tended to prosper, compared to cooler times.
- All effects of increased CO_2 are negative. But probably due in part to higher CO_2 levels, the world has enjoyed mostly bumper crops.

In our polarized world, it seems that's the way a lot of extremists on both sides treat their factoids, like religious "commandments."

Peter Jeming
Seattle, Washington

John Eades responds:

Phil Wilson and Peter Jeming both make valid points.

Wilson lays bare the subtle contradiction in the views of those in the AGW-denying cohort who (perhaps unwittingly) use science when it suits them and reject it when it doesn't. Many similar contradictions infest the denialosphere. A few less subtle ones are 1) global warming is not happening / it is happening but it's a good thing 2) global warming is happening but isn't caused by fossil fuels / it is caused by them but it's no big deal.

To Jeming, I can only point out that I too get annoyed by those journalists and other pundits who exaggerate and decontextualize the measured and cautious conclusions reported in scientific journals on topics like the connection between extreme weather and AGW. Not all effects of warming are bad, indeed, but as I implied in the article, we should let the disastrous consequences of certain past warming episodes teach us something. And while increasing atmospheric CO_2 may, as Jeming says, increase crop yields, the seriously negative effects of what now amounts to a 40 percent increase are well enough established to call for our serious attention.

To both correspondents, I would say that the intention of my article was simply to highlight some of the more egregious errors made by prominent figures in politics and the media in their critical remarks on climate science. If I were one of them I would be relieved to be unburdened of these clearly nonsensical and embarrassing faux pas.

Violent Video Games

I wonder if there are any competent studies showing that playing violent video games or watching violent media ("Video Game Violence and Pseudoscience: Bad Science, Fear, and Politics," November/December 2014) actually reduces aggression in young men? Sublimation of violent tendencies, and all that. Such studies might not be popular in certain quarters.

In my day, we used to punch out an inflatable, bottom-heavy clown (no relation to any recent electees). Worked pretty well.

Alan Dean Foster
Prescott, Arizona

Rhetoric of Extraordinary Claim

Peter J. Marston's "The Rhetoric of Extraordinary Claim" (September/October 2014) certainly adds another string to the bow of skeptics combating unrealistic beliefs. He notes that skeptics focus on the strength of arguments and overlook elements of the appeal and persuasiveness of their arguments. One tool of persuasiveness appears to be overlooked, humor, although it may be implied in the category of pathos, "the emotional aspect of proof." Satire has long been used to skewer faulty positions. Peter Marston bases his discussion of rhetoric heavily on the philosophical writing of Aristotle. For satire we can look back to the comedies of Aristophanes. In his letter-to-the-editor (September/October 2014), Patrick J. Russell advocates taking one's opponent's arguments with serious respect, noting, "If you are trying to get through to people, being flippant and sarcastic is exactly the wrong approach." Yet to argue without evidence of humor can also make one appear to be an over-serious academic and turn off an audience. Humor, well done, can help an audience relate to you and your position. I am sure that many humorists have expressed arguments that skeptics would applaud, and many leading skeptics have used humor to get their points across.

David W. Briggs
Marion, Massachusetts

Cosmos Brought Enjoyment

Re the Ann Druyan/*Cosmos* article (September/October 2014): In prison, a freethinking skeptic finds himself to be not only a minority but a bit of an oddity. So, for many glorious Sunday evenings, I would watch *Cosmos* in my cell knowing that other inmates were likewise receiving a dose of lucid science, instead of the magical thinking that dominates prison culture.

Your interviews with Ann Druyan were a delight. I've been in science-withdrawal since the *Cosmos* finale and desiring more. The articles were welcome insight to the series that brought me so much enjoyment. Sadly, I share Josh Zepp's exasperation at the state of America's scientific illiteracy. But then, in prison, where ignorance, violence, and intolerance thrive, so too do fanatical religiosity and science denial. I think that says a lot.

Chris Miller
Jamestown Prison
Jamestown, California

(We shared the above letter with Ann Druyan and Neil de Grasse

Tyson. Both said it moved them. —EDITOR)

John S. Derr
Tijeras, New Mexico

Earthquake Lights Are a Real Geophysical Phenomenon

Evidently Robert Sheaffer ("Earthquake Lights Shine Again!," May/June 2014) is not familiar with recent advances in the theory and laboratory experiments that demonstrate the possibility of significant electrical energy transfer at the surface of the Earth into the atmosphere from propagating strain caused by earthquakes. While this work is highly technical, there is nothing inaccessible about videos that show earthquake lights (EQL) at the arrival times of P and S waves. (See: http://www.pucp.edu.pe/inras/peru-magneto/mod-3cam-3.exe.)

This security camera footage, along with a number of other highly credible reports of this particular event, were analyzed and published in a respected peer-reviewed journal: Heraud, J.A., and J.A. Lira. 2011. Co-seismic luminescence in Lima, 150 km from the epicenter of the Pisco, Peru earthquake of 15 August 2007. *Natural Hazards and Earth System Sciences* 11: 1025–1036.

I suggest that anyone who has any reservations about this phenomenon read this paper before writing further on the subject. Understanding the solid-state physics and electrochemistry underlying the mechanism of EQL has already shown promise by forecasting earthquakes in some circumstances. As a coauthor of the paper that Sheaffer ridicules with cheap cynicism and association with psychic phenomena and UFOs, I would like to suggest that he and other critics not familiar with the subject dig a little deeper. This phenomenon is well worth further scientific study.

Markus Egger
President, EPS Software Corp.

Browne Coverage Appropriate

I read the letters of some of my fellow skeptics in the July/August 2014 issue responding to Bryan Farha's article related to Sylvia Browne's death. I feel compelled to write in and encourage Bryan to keep writing these kinds of articles (as did several writers in your November/December issue). I understand that some people may find it offensive to write negatively about a deceased person. However, to me, "if you can't say anything positive, don't say anything at all" can't apply in this case. SI is a scientific magazine, with a very special focus on fact-finding. It is especially devoted to investigate and state fact regardless of its offensive nature. While I would never talk negatively about a late relative or personal acquaintance, Sylvia Browne's death certainly didn't absolve her from her past deeds. I find it rather appropriate for SI to take stock after the death of any charlatan and sum up everything that happens. I would encourage Bryan and SI to do more of that, not less.

History is the study of ideas, people, and events from the past. That includes people who are alive but also people who died last week, last year, and thousands of years ago. The general public and scholars often have interest in history because of how the past informs our present. Analyzing, researching, and writing about the past, including deceased people, is important to our contemporary world. If historians wrote only hagiographies and omitted negative aspects of people's lives merely because those facts are negative, they would not only give a false record of the past but would create a world where everything would be a clean slate. That is, the public would get the impression that no psychic was incorrect, no politician was corrupt, and no conflict occurred. The ramifications of this thinking in our world would lead more people to be, at the very least, taken advantage of.

While readers are entitled to their own subjective opinion about tone and whether a specific line or criticism belongs in a particular obituary, omitting "psychic" Sylvia Browne's overall historical record of predictions in an article that discusses her life would create a false impression about her career and proclaimed abilities, which are the very issues she was famous for. To omit data about Browne's history would not only whitewash the relevant facts of what actually occurred, but would only embolden charlatans and give the general public, who do not have time for detailed study of every self-proclaimed medium, a skewed history of psychics.

Ryan Shaffer
Stony Brook University
Stony Brook, New York

Responses on Religion Article

I read with interest the responses in your November/December 2014 issue (pp. 29–32) to "Would the World Be Better Off Without Religion?" (July/August 2014). The article inferred that the brutal regimes of recent dictators in Cambodia, China, and the USSR were not religious but secular. All of these have been described as cults of personality, and I think the operative word here is *cult*.

It's hard for me to distinguish between organized religions and systems that required absolute obedience to a dogma, and whose figureheads were, for all practical purposes, gods.

Wayne Fields
Newcastle, California

No matter how much I study, read, research, try to converse with believers, attempt to understand, and otherwise try to figure it out for myself, I am always drawn to the same conclusion about religion. None of them make a lot of sense.

Norman L. Karis
Kokomo, Indiana

[FEEDBACK

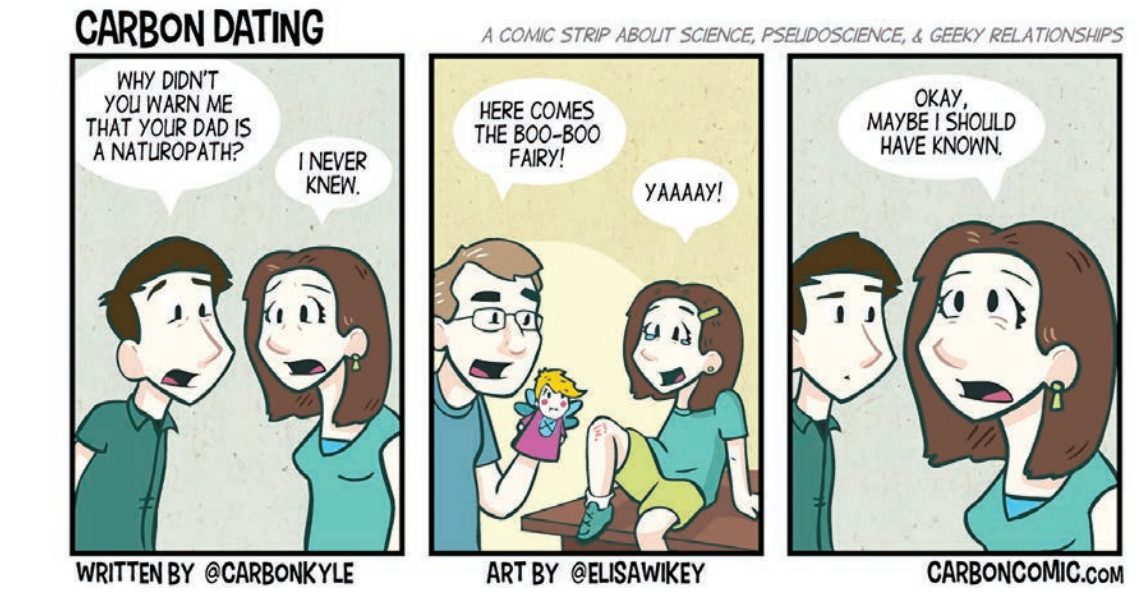
The letters column is a forum on matters raised in previous issues. **Letters should be no longer than 225 words.** Due to the volume of letters we receive, not all can be published. Send letters as email text (not attachments) to letters@csicop.org. In the subject line, provide your surname and informative identification, e.g.: "Smith Letter on Jones evolution article." Include your name and address at the end of the letter. You may also mail your letter to the editor to 944 Deer Dr. NE, Albuquerque, NM 87122.

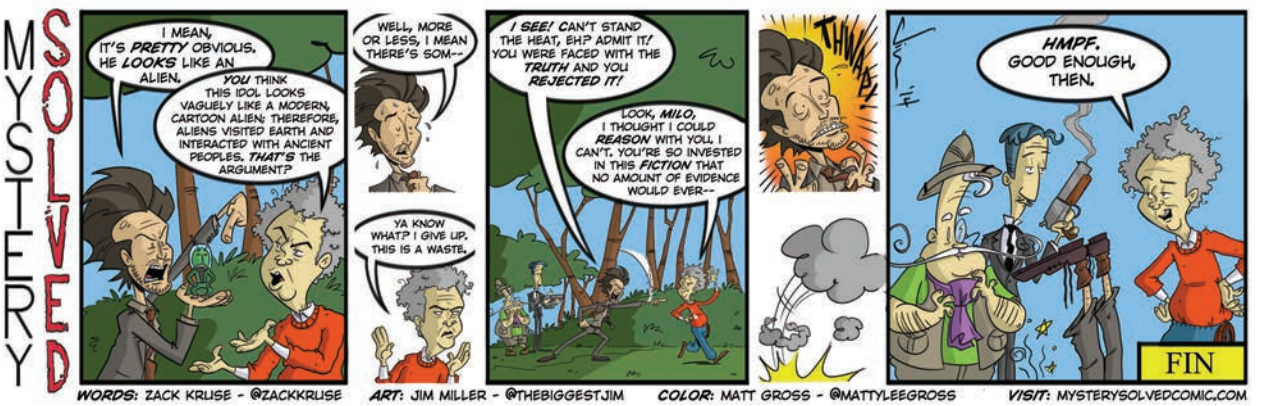
SKEPTICAL ANNIVERSARIES

by Tim Farley

March 9, 1635: The earliest known patent on a perpetual motion machine is granted in England.
March 17, 2000: A mass murder-suicide at the compound of Restoration of the Ten Commandments of God, an apocalyptic Catholic splinter group, killed 800 in Uganda.
March 20, 1995: The Japanese cult Aum Shinrikyo (or Aleph) released sarin gas in an attack on the Tokyo subway, killing twelve people and injuring many others. Multiple death sentences resulted from this case.
March 21, 1925: The Butler Act, banning the teaching of evolution in Tennessee, was signed into law. It would later lead to the Scopes trial.
March 28, 1950: After showing support for Immanuel Velikovsky's then-new book *Worlds in Collision*, Gordon Atwater was fired as director of the Hayden Planetarium.
March 30-31, 1990: A wave of UFO sightings in Belgium peaked, having begun the previous November.
April 6, 1985: The Australian Skeptics held their first national convention in Sydney with 300 in attendance. It remains the longest-running annual skeptical convention.
April 11, 2000: Deborah Lipstadt won in the David Irving libel case, in which the court ruled that calling him a "Holocaust denier" was factual. He later declared bankruptcy.
April 12, 1955: The Salk polio vaccine was declared safe and effective in a press conference. Mass vaccinations ensued and eradicated polio through much of the world.
April 30, 1915: Advertising executive James Vicary was born; his 1957 test of subliminal advertising in a New Jersey cinema was later admitted to be bogus but nonetheless spawned widespread belief in subliminal advertising.

Tim Farley is the creator of the website whatstheharm.net and blogs at skeptools.com. He is a past fellow of the James Randi Educational Foundation.


CARBON DATING
A COMIC STRIP ABOUT SCIENCE, PSEUDOSCIENCE, & GEEKY RELATIONSHIPS
WHY DIDN'T YOU WARN ME THAT YOUR DAD IS A NATUROPATH?
I NEVER KNEW.
HERE COMES THE BOO-BOO FAIRY!
YAAAAY!
OKAY, MAYBE I SHOULD HAVE KNOWN.
WRITTEN BY @CARBONKYLE
ART BY @ELISAWIKEY
CARBONCOMIC.COM


MYSTERY SOLVED
I MEAN, IT'S PRETTY OBVIOUS. HE LOOKS LIKE AN ALIEN.
YOU THINK THIS IDOL LOOKS VAGUELY LIKE A MODERN, CARTOON ALIEN; THEREFORE, ALIENS VISITED EARTH AND INTERACTED WITH ANCIENT PEOPLES. THAT'S THE ARGUMENT?
WELL, MORE OR LESS, I MEAN THERE'S SOM--
YA KNOW WHAT? I GIVE UP. THIS IS A WASTE.
I SEE! CAN'T STAND THE HEAT, EH? ADMIT IT! YOU WERE FACED WITH THE TRUTH AND YOU REJECTED IT!
LOOK, MILO, I THOUGHT I COULD REASON WITH YOU. I CAN'T. YOU'RE SO INVESTED IN THIS FICTION THAT NO AMOUNT OF EVIDENCE WOULD EVER--
THWAP!
HMPF. GOOD ENOUGH, THEN.
FIN
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Bay Area Skeptics (BAS) San Francisco–Bay Area. Eugenie C. Scott, President. 1218 Miluia St., Berkeley, CA 94709. Email: scott@ncse.com. www.BASkeptics.org

Independent Investigations Group (IIG), Center for Inquiry–Los Angeles, 4773 Hollywood Blvd, Los Angeles, CA 90027. Tel.: 323-666-9797. www.iighq.com

The James Randi Educational Foundation. James Randi, Director. Tel: (213)293-3092; Email jref@randi.org. 7095 Hollywood Blvd. No.1170, Los Angeles, CA 90028. www.randi.org

Sacramento Skeptics Society, Sacramento. Terry Sandbek, President. 4300 Aubum Blvd. Suite 206, Sacramento CA 95841. Tel.: 916 489-1774. Email: terry@sandbek.com

San Diego Association for Rational Inquiry (SDARI) President: Tom Pickett. Email: pickett.thomasj@gmail.com. Program/general information 619-421-5844. www.sdari.org, Postal address: PO Box 623, La Jolla, CA 92038-0623

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New York City Skeptics Michael Feldman, president. PO Box 5122 New York, NY 10185. www.nycskeptics.org

Central New York Skeptics (CNY Skeptics) Syracuse. Lisa Goodlin, President. Tel: (315) 636-6533; Email: info@cnyskeptics.org, cnyskeptics.org PO Box 417, Fayetteville, NY 13066

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Cleveland Skeptics Joshua Hunt, Co-Organizer, www.clevelandskeptics.org

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Association for Rational Thought (ART) Cincinnati. Roy Auerbach, president. Tel: (513)-731-2774, Email: raa@cinci.rr.com. PO Box 12896, Cincinnati, OH 45212. www.cincinnati skeptics.org

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The organizations listed above have aims similar to those of the Committee for Skeptical Inquiry but are independent and autonomous.
Representatives of these organizations cannot speak on behalf of CSI. Please send updates to Barry Karr, P.O. Box 703, Amherst NY 14226-0703.
International affiliated organizations listed at www.csicop.org.

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